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COAL AGE

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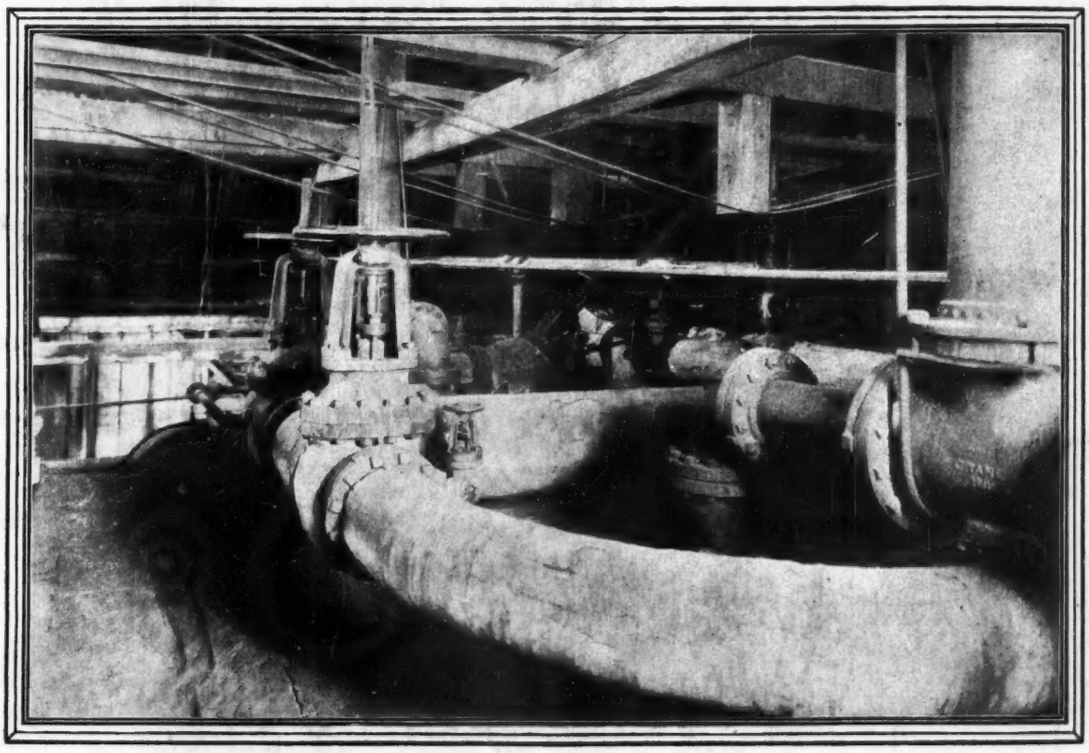

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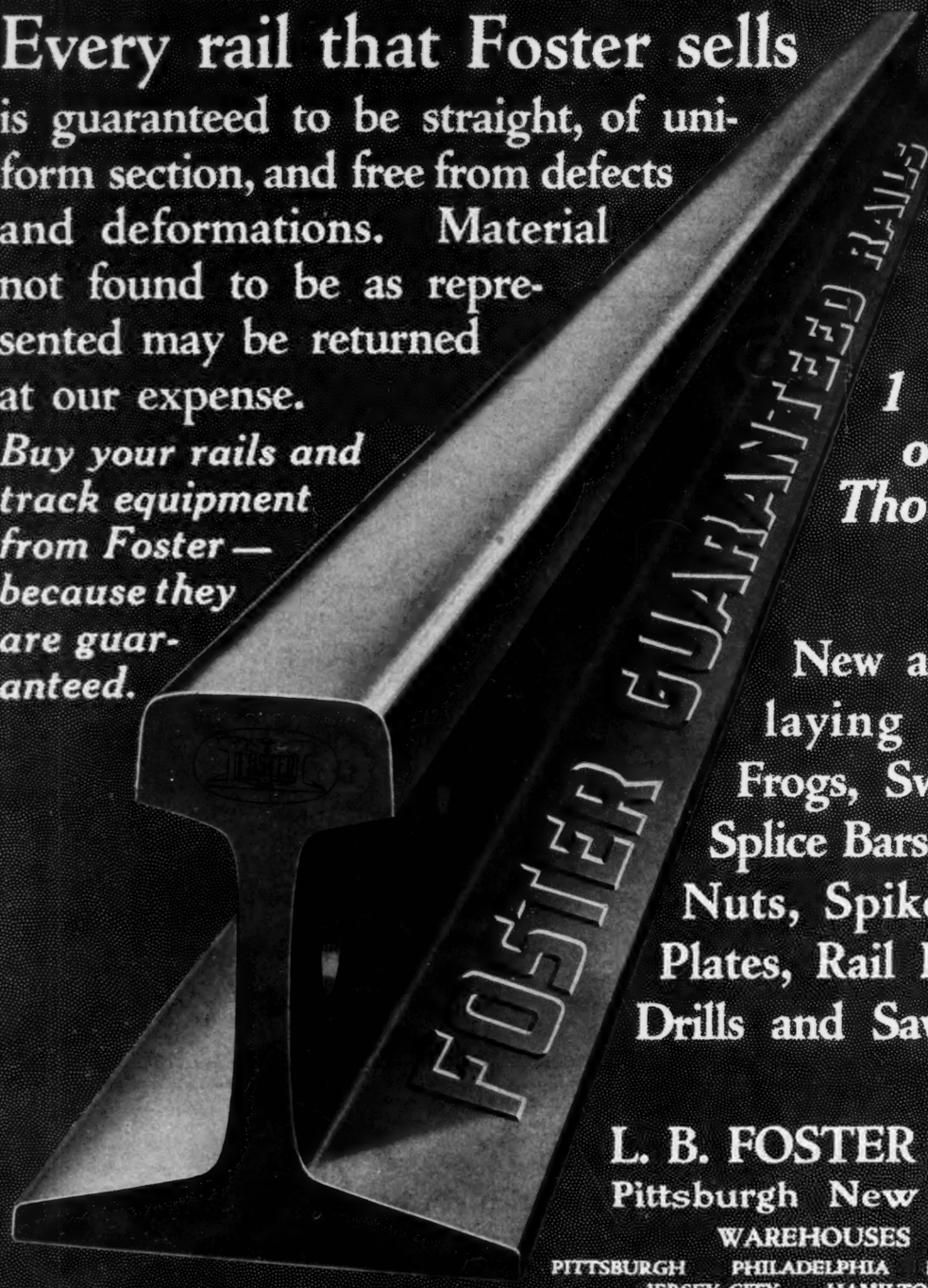

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COAL AGE

The Only National Paper Devoted to Coal Mining and Coal Marketing

C. E. LESHER, *Editor*

Volume 24 NEW YORK, NOVEMBER 8, 1923 Number 19

Time to Clean House

THERE is a deal of difference between prices for coal set by the ordinary play of supply and demand and prices set by force. Most of the complaints about the high prices for coal in the past few years have had no other justification than that buyers, wanting coal faster than it could be supplied, bid up the price. Abnormal conditions accentuated the normal result of effect following cause. The operator increased his price with the market and the increase was passed on. But there is today an unnatural factor introduced into the trade in the East that brings no credit to those who resort to its exercise.

Bituminous coal is being sold with a club. And that club is putting an unwarranted premium on anthracite while cutting the heart out of the soft-coal market. Dealers are being forced to take bituminous coal or steam sizes of anthracite, often car for car, with deliveries of domestic sizes of hard coal. Of course the tonnage of anthracite that is thus marketed is small compared with the whole, but the effect on the trade is important and on prices is entirely out of proportion to the volume of business so done.

The dealers have little or no market for or ability to sell this steam coal, whether hard or soft, and they turn it back on the market, to be sold at any price that it will bring, thus depressing the spot price of steam coal. Their losses are made up by putting a premium on the egg, stove and nut anthracite they get. The soft-coal house, whether producer or wholesaler, that is lending itself to this practice is hurting its own business and adding to the discredit of the whole industry. At best but a very small fraction of the bituminous coal seeking a market can be forced on the trade in this fashion, and when as a direct result of the distress in which it finds itself some of that coal is publicly offered at a dollar a ton, the buyers are given an entirely erroneous idea of values.

But however complacent the buyer of steam coal may be as the coal man undermines his own prices, the buyer of hard coal has just cause for complaint. The present high price of independent anthracite is not warranted. Neither the production and deliveries to date this year nor the weather can be used to explain $11 and $12 hard coal to the dealer. "Backdoor" trading has always been a feature of the New York market. It is not an indictable offense, nor is it less outside the letter of the law when a seller dribbles out a portion of his product through a willing free-lance jobber to be sold at a price higher than he is willing openly to quote it.

Not only are ordinary good business ethics violated by such pandering to the desire for immediate large profit but the whole scheme is unsound merchandising. The trade knows these things, it knows who are the prime movers and pace setters, and who of good reputation have fallen. It is no cause for self congratulation that the District Attorney and the Federal Trade Commission can "get nothing on them." The argument that it is fair to charge the "market" and unfair to suggest or to expect one to sell for less falls down when the buyer is blackjacked.

Misrepresentative Statistics

IT DOES not subtract from the distrust in which all coal men hold the Federal Trade Commission when that body resorts to such unfair tactics as are challenged by E. W. Parker in an open letter to Chairman Murdock. The Trade Commission is rendering the public—at the request of the President—current reports on anthracite showing the movement through jobbers and the commissions charged.

Mr. Parker is exposing a statistical trick used by the Trade Commission to conceal the meagerness of its returns, and, whether intentional or not, a trick that misrepresents the facts. The objection is to the use of percentages without showing the quantities or the relationship to the whole output, as when the last report of the Trade Commission said that one-third of the tonnage of anthracite was sold at more than $12 per ton at the mine—an obviously incorrect statement with respect to the industry as a whole, but doubtless true of the sales on which the report was based, which may have represented but 1 or 2 per cent of the total business.

Taking Up Coal in a "Serious" Way

MRS. LOUIS REED WELZMILLER, Deputy Commissioner of Public Markets of New York City, is the economical, efficient kind of citizen that should be put in charge of all public work. For a small sum to cover a few days' expenses in the anthracite fields, she has given us a report on hard coal that for conciseness, definiteness, positiveness, and assertiveness puts to shame everything previously attempted.

Mrs. Welzmiller has "done" coal before. She investigated Somerset County during the 1922 strike and had her picture in the Hirshfield report to Mayor Hylan. It is surprising how much one with that experience was able to accomplish in investigating anthracite. What a waste the $600,000 spent by the Coal Commission! And the time saved, too! And against such odds! Why the horrid coal companies refused to let her underground to see how much coal is left, but she overcame that hazard by disguising herself as a miner and with the assistance of a hardy union official stole past the minion at the portal—or should we say the cager?

How simple it all is, if one but has an open mind, a few days and sufficient disguise! Mrs. Welzmiller drew seven numbered conclusions that may easily be stated as follows: There is more anthracite than the public knows about and there are new deposits yet to be

found; the price is too high and freight rates must come down; the miners are not overpaid; and the industry should be regulated by Washington and the department of public markets for which Mrs. Welzmiller works.

Perhaps one should be more charitable toward the Coal Commission for not being so decisive.

Substitutes for Unions

LABOR federationists have again attacked the Mitten employee-representation and co-operative profit-sharing plan of the Philadelphia Rapid Transit Co. Mr. Mahon, president of the union of street railway employees, assailed it at a recent convention of this union as absolutely hostile to trade-union collective bargaining, adding that it seeks to destroy trade unionism itself.

The basis of the attack on what Mr. Mahon has dubbed "Mittenism" is that by providing a workable substitute for unionism, that form of collective bargaining has been superseded and is in effect displaced. What has been provided is a working arrangement that inspires the worker as well as the management to better service because they are all partners in the business. There is no place here for the three words that adorn the banner of the A. F. of L.—"Agitate! Educate! Organize!"

There need be no great fear that the Mitten plan is going to put the unions out of business at once. The employers require almost as much education in industrial relations as do the employees before that can come to pass.

Business Indicators and Coal Stocks

THE energetic coal man has already discounted this winter's business and is talking about the prospects for next season. With only the normal seasonal demand for household coal in sight, with the unusually heavy Lake movement soon to be cut off, and with steam-coal buyers heavily stocked there is no prospect of a market recovery. A heavy volume of steam coal is moving on contracts but it requires pressure to sell spot coal. The least tendency toward an upward turn in quotations would now cause buyers to withdraw and wait, leaning on their stockpiles.

Were it not for the uncertainty of what will happen next spring—the strike threat—there would be a slackening in demand and production of bituminous coal even this early in the winter. The coal buyer is more fearful of a strike next April than is the coal producer. This feeling on his part has prompted in large measure the steady buying of steam coal this autumn. The only thing that will dispel the feeling is a new contract, signed, sealed and delivered. Industry weathered the 1922 coal and railroad strikes and prospered because of heavy stocks. The lesson has not been forgotten.

It is a long shot to look into next year, but there are a few factors now apparent that will affect next summer's coal history. Production of goods into the manufacture of which coal enters in quantity is quite generally on a declining rate. Pig iron, steel, textiles, paper, flour, and packing-house products, all heavy coal users, are below the level of activity of the midyear. The textiles, indeed, are less active than at this period last year.

Notwithstanding this evidence of slowness, November opened with the business world optimistic, the stock market after months of dullness spurting upward, everywhere confidence in good business this winter. The better business is this winter, the more avid the industrial consumer and railroads will be in holding to and even increasing coal stocks against next April. The size of that stockpile next March will be the biggest argument to be faced when a strike is being considered, and it will likewise, in the event of no strike, be the largest single factor in setting the level of coal prices for the next coal year.

Who Will Read Them?

FROM time to time wonderment has been expressed at the volume of the reports issued by the U. S. Coal Commission and gloomy prediction made that the public would never know their contents. The coal industry has a heavy investment in these reports and wants the people to know more about coal. Interest on the outside is such that former strangers to coal are interpreting the Coal Commission's findings to large sections of the public.

An instance in point is the publication in the Northwest of a series of specially written articles on coal in *The Farmer*, which claims to reach 130,000 farmers in that region. Two articles dealt with anthracite, the third with bituminous coal. The writer of the series gave a fair interpretation in popular language of what the Coal Commission had published up to the time the articles were written.

The farmer will learn from the articles that the full-time worker in hard coal gets from $2,700 to $3,200 per year and the great majority of the men between $1,700 and $2,000 a year. He is told that the miners had a weak case this year and the "public is not likely to have much patience with it." The hard-coal operators are charged with having a large part also in the high price the farmer of the Northwest pays for his anthracite. The monopoly sections of the Coal Commission's report are quoted.

The writer of these articles for *The Farmer* closes that on anthracite with a little punch of his own as follows:

> What is needed most, however, is a little real temper on the part of the long-suffering and too patient public. What is needed is an insistent public demand that legislation to regulate profits and to curb the arrogant dictatorship of union mine labor shall be passed. What is needed is a little more knowledge that anthracite is not the only kind of coal, a little more co-operation in buying during the summer season, and a whole lot of independence in seeking and using substitutes, such as soft coal and oil.
>
> When the public gets busy, and only then, our domestic fuel problem will be solved. And there is a widespread suspicion that the public is going to get so busy this coming winter that Congress will be forced to legislate some of the excess profits and needless shortages out of the anthracite industry, and legislate into it some decent business practices and some respect for the public interest.

The article on bituminous coal is a liberal interpretation of the Coal Commission's ideas and theories. It is summed up with the assertion that the only remedy for the major ills of the coal industry is government regulation, but if not, "then the only alternative is government operation, and the people of this country are not in favor of that."

Thus does John Brown's Body Go Marching On.

Coal Commission Suggests

Ways of Operating Mines That Would Lower Cost

Machine Loading Has Been Proved Efficient—Introduced in Half of Our Coal Mines It Would Save $200,000,000 a Year—Concentration of Output Would Make Supervision Easier and More Effectual

IN every industry certain organizations have surpassed others in the skill and initiative in which they have handled their management problems. The development of science in industry, moreover, has proved conclusively that certain general principles of management—principles recognized as fundamental only within the last few years—are of universal application in all industries. It is thus evident that it is practical and worth while to examine underground mine conditions both on the basis of the best managed mines and also in the light of the developments that have taken place in industry as a whole during the last fifteen years.

The vital relation of such developments to harmonious labor relations lies in the elimination of causes of friction and the substitution of facts for opinions.

Strictly confining ourselves in this study to underground management, features of vital importance to the future of bituminous coal mining are:

(1) Development of machinery to replace the irksome and solitary operation of hand loading. In this lies the greatest opportunity, not only for lowering costs but for the improvement of mining conditions and the reduction of accidents. The importance of this can be realized when it is appreciated that with the introduction of machine loading and the incidental developments accompanying installation of machines, the total cost of coal at the mine in many cases may be reduced by as much as 30 per cent of the present costs. This may be shown by actual operating results. Assuming such reduction possible in only one-half of the bituminous mines the actual net saving in money value would amount to over $200,000,000 per year.

(2) Control of underground operations. Both in machine- and hand-loading mines progress must be toward functional methods of planning and control of the work of the men and machines, such as have been introduced in industries other than coal mining. Instead of leaving the distribution of miners' cars to the motorman or assistant foreman, instead of a hit-or-miss supervision of cutting machines and of company men, more definite planning and control of transportation and of all other underground operations is needed. This must include not merely a morning schedule, such as is now thought out in some mines, but a positive control continued throughout the day to include not only the directing of the mine cars to the miner and the regulation of locomotive trips but also the correlating of the operation of cutting machines and all the company work with coal loading. Increase in output at the mines will naturally follow such developments and also afford a saving in overhead and a gradual cost reduction with increased contentment of the workers through the elimination of lost time.

(3) Improvement in the work of the individual. Analyses of the operations and a determination of the

THE FOLLOWING is a reproduction of the document with which the National Coal Commission submitted the report on "Underground Management in Bituminous Mines" to the President:

To the President and the Congress of the United States:

As a result of its engineering study on Underground Management in Bituminous Mines, the U. S. Coal Commission believes that reductions can be made in the cost of production through improvement of operating methods, without any reduction in wage rates, by the:

Development and efficient application of mechanical devices to replace hand loading;

Better control and co-ordination of underground operations, particularly cutting, loading, and haulage;

Standardization and co-ordination of the work of the individual mine worker;

Standardization of details of construction and dimensions of mine cars, locomotives, track and all other equipment; and

Multiple shifting of work in the mines and preparation plants, thus obtaining greater production with the same plant investment.

The detailed report on Underground Management in Bituminous Mines follows. It was prepared by Stanford E. Thompson, of the Thompson & Lightner Co., of Boston, in consultation with Howard N. Eavenson, and assisted by George T. Haldeman, under the direction of C. E. Lesher and Raymond A. Walter, engineers of the Commission.

best methods and times for accomplishment will result in larger performance by company men, will provide a basis for the more thorough co-ordination of the work, reduction of delays, systematic handling of dead work, development of standards of production for company men as well as loaders, and eventually balanced earnings, not from the standpoint of uniform wages and piece rates as at present, but such as will give each man a square deal and a reward for his individual performance.

(4) Standardization of equipment, such as mine cars, motors, weight and gage of track, electrical equipment, etc., with determination of the best for each individual mine.

The foregoing features in this study omit consideration of the effect of railroad-car supply and excess mines on operating problems as these are treated elsewhere in the report of the Commission, but it may be said here that where more than one shift has been found practicable, an appreciable saving and a reduction in overhead expense has been attained.

Management Makes—or Breaks—Mines

The effect of improved underground management on the miners is strikingly illustrated by a comparison of two mines thirty miles apart, in the same district, extracting the same seam, having similar physical conditions and afforded a similar railroad-car supply, both being union mines. In the one, plenty of miners are available at all times; in the other, such a scarcity prevails that the mine is running only at part production. The difference lies in the methods of managing the underground operations, the distribution of mine cars, the co-ordination of cutting machines, the handling of dead work, the supervision of company men. And yet the handling of the better-managed mine, and in fact even of the larger and better-equipped mines throughout the various fields, is found, at least in underground methods, to be generally behind that in some of the other major lines of industry.

So greatly do conditions vary in different mines with respect to the thickness and character of the seam, the quantity and nature of the slate, the condition of the roof and floor, the drainage, ventilation, etc., that no two mines are alike and many important differences in operating details are necessary. After giving due consideration to the breadth of the territory embraced by the industry and the different physical difficulties encountered, it appears, however, that the general scheme of handling work underground is quite uniform, perhaps even remarkably so, and as uniform, in fact as that in many other large industries, although the opinion of many mining men is to the contrary. Because of this basic uniformity it seems possible through a careful analysis of a comparatively few mines located in representative states and districts, and a broad general survey of the field, supplemented by the studies of other Commission investigators, to present specific conclusions and recommendations.

In the studies at the mines the field parties have received the cordial co-operation of the representatives of the operators and of miners, who exhibited evident appreciation of the constructive possibilities of a better management of mining operations.

The contentment of the miner during his working hours and the regularity of his remuneration while the mine is operating depend upon the underground management. With the advent of electric haulage, electric lights, ventilation and safety appliances, management methods more and more are being recognized as properly controlling, in a measure formerly considered impossible, the effect of varying physical conditions in the mines.

The profits of the operator, also, to a larger extent than is generally recognized, are dependent upon his management of the mine. Assuming, for example, a 15c. profit per ton; if he can reduce his cost of mining only 5c. per ton, with the same selling price, he automatically increases his profit one-third. The consumer benefits as soon as such cost reductions become general, or even before, as the seller reduces his prices in competition.

This designation of management as a major feature is made with full appreciation of the vital importance to the industry of the railroad car supply, the number of mines, and the storage of coal. In fact, all these inevitably affect the management in the mine, because of the direct effect of each of them on the working time of the miner and the cost to the operator. However, except as these indirectly affect the management of the mine, their consideration is left to other divisions of the Commission's report, and we take up here the means for cost reduction and for improving the miner's physical and financial condition through the treatment of the management problems at the mine.

Strange as it may seem to those acquainted with the industrial developments in factory management during the last decade, though the initial layout and development and equipment and plan of haulage are worked up in great engineering nicety to fit local conditions and physical characteristics, the operation of the underground work is frequently under the absolute control of the mine foreman or mine manager, as he is sometimes called, with his assistant foreman or face bosses.

Mine Foreman Has a Legion of Duties

As the mine foreman is the chief underground official, the problems in underground management in a bituminous mine may best be understood by a brief consideration of the work of these officials and their assistants.

The supervision of the miners, or loaders, as they are usually called, who work alone one man to a room or to an entry or two men working alternately in two or three rooms involves a visit, usually twice a day, to inspect the quality of the work, see that refuse is properly gobbed, see that only clean coal is loaded and that the miner is gobbing his bone, advise him on location and slant of shotholes and the loading required, examine the track in the room, inspect his timbering, sound the roof, listen to any complaints, dicker with him as to the amount of work, if any, on slate or rock which is to be done by the day or job, reach an agreement on all claims for allowances for dead work and take up grievances with the pit committee.

As the loaders and also the machine cutters are paid by the mine carload, or on a tonnage basis, the foreman is relieved of the necessity of driving the men and his relations with miner are generally cordial. The assignment of the men to their working places is simpler than might be supposed, because a miner, having once been given a room, remains in it day after day, advancing it so slowly that he may remain in his place for several months before it is completed.

The foreman must settle any disputes or complaints with reference to the conditions at the working place

and arrange for the substitution of new men if for any reason the loader quits. The foreman must supervise the cutting machines, co-ordinating in the miles of underground workings which he supervises, the blasting, cutting, loading, and hauling of coal so that delays will be reduced to a minimum. He must lay out, follow up and inspect the work of the company men who excavate rock in entries, lay track, place trolley wire, set timbers, build permanent walls for roof support, build temporary walls for ventilation and place brattices.

Added to these duties, the foreman and his assistants direct traffic. The supply of cars to the miner, one of the most vital operations in underground management, is handled chiefly by the motormen, with supervision, when necessary, from the foreman, or his assistants. To a large extent the motormen in hauling the trips on the main line as well as the motormen in gathering cars use their own judgment as to the number of cars in a trip, the number of trips, and time of making trips, with a view to satisfying the requirements of the miner and the convenience of the operating crew at the tipple or at the bottom of the shaft.

The foreman and his assistants must supervise the removal of the pillars in second-mining or pillaring operations. The development plans, including the size of the rooms and width of pillars, are generally determined by the engineers and officials. Many questions of local nature having to do with the daily operation are of necessity left to the judgment of the foreman.

Generally also the foreman has the responsibility for endless other details such as pumps and drainage, ventilation, the roadbed, the decision as to the quantity and location of timbering, the care of the injured, and the clean-up of rock falls. He must always bear in mind the safety of the employee, the protection of the mine and the obtaining of the largest and most economical production possible.

Some companies insist upon a high standard of qualifications for assistant foremen or face-bosses. Frequently they are required to hold certificates of competency—given only after rigid examinations in accordance with requirements of the mining law. Other companies are not so exacting and the men for these positions are selected by observation for their experience as miners and ability to direct the work of others. Unfortunately in only too many mines even these requirements are ignored and the assistant's sole qualification is his mining experience. The responsibilities of the position are too great for any but the best men available, and the presence of so many incompetent men indicates a sore need for better underground management, especially seeing that as many as 150 men may be working under one of these assistants.

More Foremen or Greater Concentration

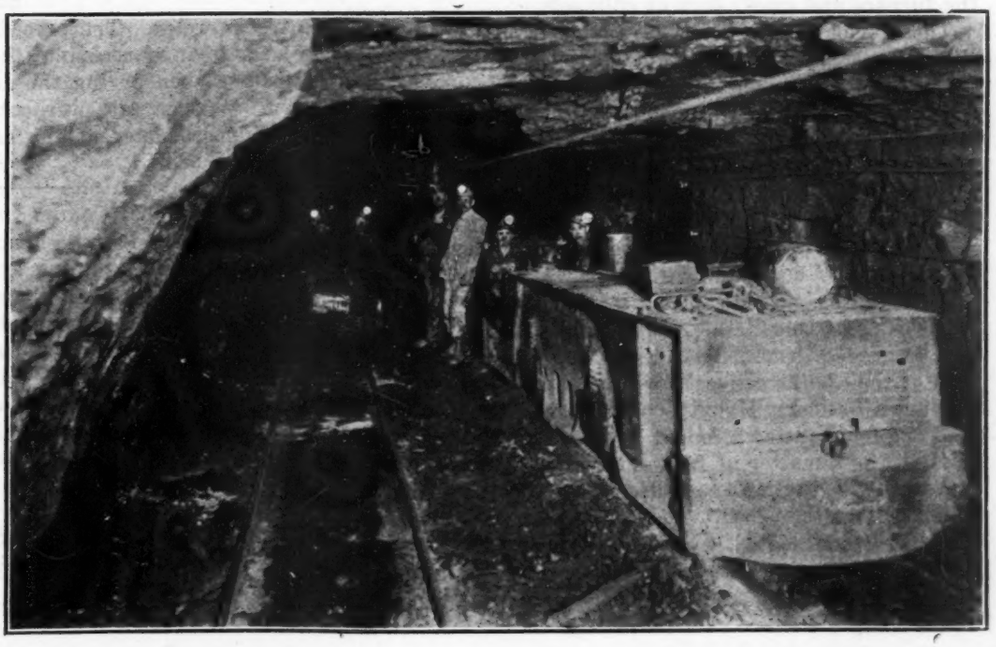
The solution at first thought, would be in a larger number of foremen. Our examination, however, showed that conditions are by no means satisfactory even where a few are found working under the supervision of a face boss. The solution of the problem of more efficient underground management must be found rather in developing such machinery and advanced methods of planning and control of standardized production as will correspond more nearly to those being worked out to such a high degree in many industrial establishments.

In most industries remarkable progress has been made during the last century in the development of machinery to replace slow and arduous hand labor and to reduce production costs. The bituminous-coal mining industry is reducing manual labor through the introduction of machinery and in that process has at last reached the final stage. The first was the use of undercutting machinery. The importance of the problem, both to the workman in lessening his toil, and to the consumer in reducing the cost of coal, is evident when we consider that some 70 per cent of the cost at the mine is labor and more than one-half of this labor is for cutting and loading coal into the mine cars.

This transition will, of course, decrease the human labor needed at any given point or for any given production. This is inevitable and desirable. However, unlike the introduction of other automatic machines into industry, such as the spinning frame, the transition naturally will be slow because the machinery will have to be adapted to the physical condition of different mines. Furthermore, instead of requiring labor of less skill the miners left will be of a higher type, for to

Mine Parting

Always the despair of superintendents, mine foremen, miners and efficiency engineers. Here time is lost by men and locomotives alike. Here the old problem of the railroad yard is duplicated but not solved. It can be corrected only when double track replaces single so that going traffic does not interfere with returning. At the mine here illustrated much effort has been made to avoid the delays and heartaches that the word parting spells.



operate the machines will require greater initiative than is demanded of those who ply the pick and shovel, which is now the principal tool of the coal miners. Furthermore, the surplus labor, if any, will not go a-begging. In other industries men are needed who are trained to perform such work as shoveling coal.

The industry will slowly substitute mechanical for hand loading just as it will also develop coal storage, thus regulating production and lowering its costs. Development of enough low-cost operation to supply the demand will automatically eliminate the high-cost mine, the snowbirds and the wagon mines which under existing conditions in periods of car shortage absorb such a large portion of the transportation service as to lower the working time of the better mines, thus unduly increasing their costs.

As will be brought out later in this report, the change in the method of mining from man to machinery, while yet in its infancy, has been accomplished already. Among the mines observed, two were practically machine-operated as far as the cutting, drilling and loading of coal were concerned. In one of these only four hand loaders remained on special work, and the other mine was doing all its loading by machinery. In a number of other mines machine loading was in varying degrees of operation. In one mine machines had been used for loading during a period of nearly ten years. One company has purchased seven loading machines to use in a new opening.

Semi-Bituminous or "Smokeless" Coal Best As Substitute for Anthracite

SEMI-BITUMINOUS coals, embracing the "smokeless" Pocahontas, New River and Georges Creek coals of Virginia, West Virginia and Maryland and the smokeless Clearfield coal of Pennsylvania, probably are the best adapted of any "soft coal" for use as a substitute for anthracite, states Rudolf Kudlich, assistant to the chief mechanical engineer of the Bureau of Mines, in Serial 2520 of the Bureau, recently issued. If properly fired and drafts properly regulated, these coals can be burned without smoke and will deposit very little soot in the furnace and smoke pipe or chimney.

These smokeless coals are available in practically all the Eastern markets where anthracite is the customary fuel. They are higher in heat value and usually contain less ash than anthracite, and as a general rule can be bought considerably cheaper. Because of the higher heat value, if such coal is sold at two-thirds of the price of anthracite, the purchaser actually gets almost twice the amount of available heat for his money. With proper care in operating his furnace he can realize this saving entire, but even with careless handling much expense will be saved.

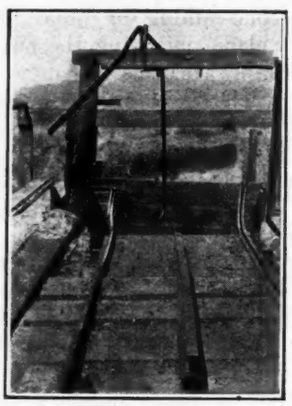
All coals of this class are extremely friable and cannot be graded in size like anthracite. A large proportion of the coal as delivered will be in small sizes grading down to dust. Many people not accustomed to this coal are reluctant to accept it, considering the fine sizes as dirt. As a matter of fact, this fine coal contains less ash and will give off more heat than the large pieces. This coal has the property of "coking," that is of fusing together when heated, so that if properly fired it will form large pieces which do not fall through the grate to the ash pan. Because of its large percentage of fines, this coal is somewhat dust and dirty to handle dry. If well wet down before it is put in the cellar, and if the front of the pile in the bin be kept moistened with an occasional bucket or two of water, this dirt can be largely eliminated.

Device for Prying Open Endgate of Car

By Cecil Rowe
Mining Engineer, Kinney Coal Mine, Tokay, N. M.

FREQUENTLY when discharging end-dump cars on a horn dump, the gate hook will fail to engage the lugs on the car door and the car will tip over with the door closed. When this happens it is necessary to use a bar or some other instrument to pry the door open. Usually the rock comes against the door with such force that the latter is opened only with difficulty. Much time is lost even if a satisfactory pry is at hand, which is not always the case. To overcome this difficulty I have used the device shown in the illustration, with excellent success.

It consists of two 2 x ⅝ in. pieces of band iron, one piece forming the handle with two holes drilled in it, one hole for bolting to the upright irons and the other for fastening to the second and hooked piece of band iron. The hook is engaged in one of the door lugs, and by pulling down on the handle enough force is exerted on the door to pull and hold it open until all the rock has left the car. At the movable joints ½-in. bolts are used.



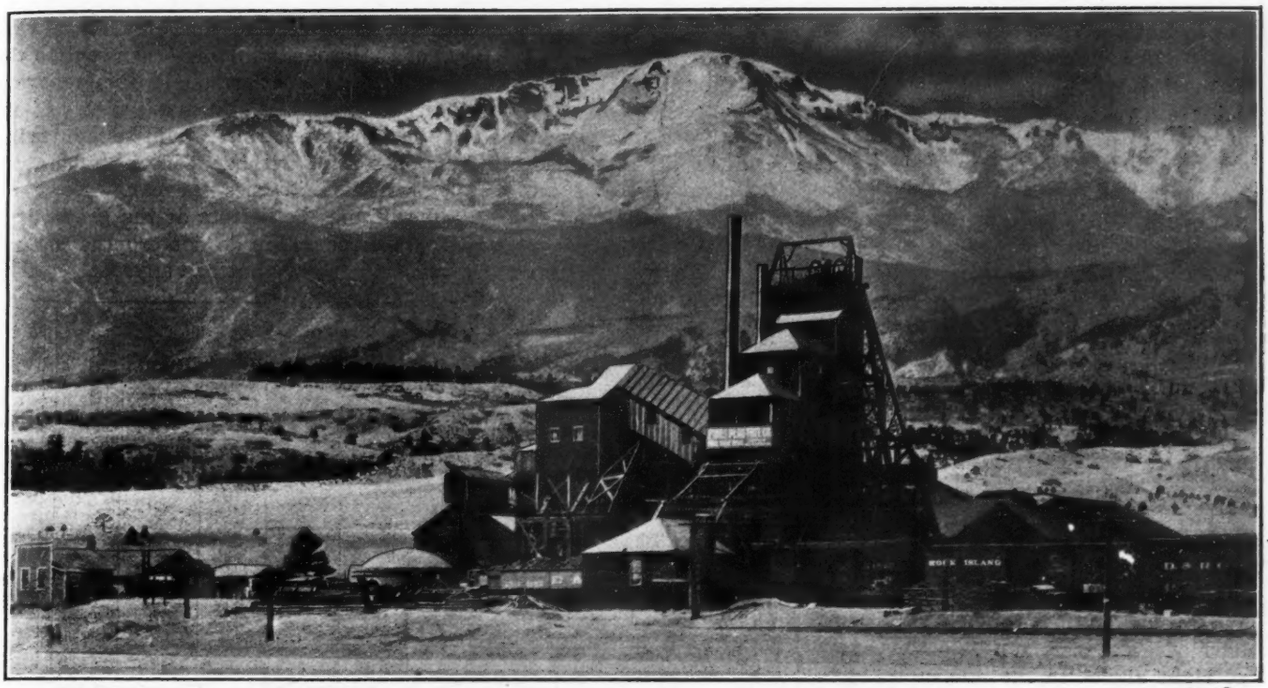
HOOK FOR OPENING CAR DOOR

Most hooks are planned to open the car door as it drops forward in the dump. This is intended for opening the car when tipped.

It will be noted in the illustration that no gate hook has been provided. In this case the cars were dumped into a long chute and all cars were tripped over with the door closed because dumping with the door open caused the rock to jump over the sides of the chute, endangering nearby workmen. The procedure consisted of pushing the loaded car of rock into the horn dump, allowing it to tip, and then prying the door open with the device shown. Wooden cars were used with a small hole cut in the upper center of the door, this hole serving to engage the hook.

Would Dissolve Coal and Use It as Oil.—In an address given at Birmingham, England, Oct. 15, K. N. Moss, professor of mining at Birmingham University, stated that a Japanese worker claimed to have discovered a solvent—hydro-naphthalene—that would dissolve 70 per cent of the coal substance. Mr. Moss called attention to the progress being made in researches aiming at the conversion of coal dust into liquid fuel by the use of solvents. In the mining department of Birmingham University the hydrogenation of coal was being investigated.

The Weight of 1 Cu.Ft. of Sized Coke is as follows for the various sizes: Egg, 30 lb.; stove, 34 lb.; nut, 36 lb.; pea, 38 lb.; run-of-oven, 31 lb.; foundry, 25 lb.; water gas, 30 lb.



*Pikeview Mine of Pikes Peak Consolidated Fuel Co.**

At Pikeview Mine Pillar Drawing Raises Extraction to 95 per Cent; Formerly Only Two-Thirds as Much

Cutting Back Abandoned Coal 30 Ft. at Time, Allowing Roof to Cave by Sections, Works Well in Lignite Mine of Pikes Peak Consolidated Fuel Co., Giving Property New Lease on Life

NINETY-FIVE per cent extraction! What a production record that is for an underground coal operation! And how few mines attain it! The Pikeview mine of the Pikes Peak Consolidated Fuel Co., in the edge of Colorado Springs, Colo., is one of the few. There, extraction has been raised to approximately 95 per cent by a method of pillar pulling. The owners are getting all the coal any reasonable and well-informed mining man could expect out of the property—a good deal more than had ever been hoped for until Henry Thomas, mine superintendent, took charge. Today vast areas of thick pillars, long abandoned as lost coal, are being pulled in regions close enough to the main shaft to effect a marked reduction in underground haulage costs.

The 130-ft. shaft of the Pikeview mine, five miles north of Colorado Springs and in plain sight of Pikes Peak, the best known mountain in Colorado, taps the 12-ft. Laramie seam of lignite at a point not far from the southeasterly edge of the coal deposit. The mine is an old one, and operations had been carried back under the foothills to the northwest of the shaft nearly two miles in a rather narrow and restricted zone. Haulage was getting long. This was a consideration even though the grades against the loads were not heavy.

Extraction was not a bit better than the average for lignite operations in Colorado—something like 60 per cent at best. This figure may look quite satisfactory to many a coal operator in fields such as those of Illinois and Indiana, where little more than 50 per cent of the coal is removed and where one well-known string of mines runs down to the extreme of 39 per cent extraction. But it looked bad to the Pikes Peak Consolidated Fuel Co.

*Mountain to rear of mine is Pikes Peak, 14,147 ft. high.

Left Nearhand Coal and Sought More Remote

The mine was operated on the room-and-pillar system with 21-ft. rooms, 300 ft. long laid out on 45-ft. centers. This left the "worked-out" areas full of 24-ft. pillars. To extract the average 300 tons of coal a day in those years it became necessary to work far back under the hills. Something had to be done.

An effort at one time was made to rob some of these pillars. Machines went in and made long rib cuts from the old faces out toward the room necks. Some easy coal was recovered. Then, disliking to work machines in rooms where pillars were growing thin, the men began a little solid shooting, by which they made breakthroughs at 40-ft. intervals in each pillar and by which the remaining sections of the pillars were nibbled so that they were finally left with long, uneven, bias faces (Fig. 1).

The roof over this coal is a crumbly sandstone covered by a strong cap rock a few feet above. Ordinarily 18 to 24 in. of top coal is left to hold it. Little effort was made in the first pillar-drawing experience to brush this roof coal. The characteristic bottom under the

seam is spongy and likely to heave a little. A foot of coal regularly is left to help restrain it. None of this was recovered. Many accidents occurred during the pillar drawing, and it became difficult to engage men to work in it.

Eventually Mr. Thomas was brought in as mine superintendent from one of the best known lignite operations in Colorado. He laid out his plan of pillar drawing and put it into effect with such determination—and with such success—that his men followed him with confidence and have worked at it without trepidation ever since. There have been no serious accidents traceable to the method.

Standard practice in pillar drawing now is to maintain a parallel front on all the pillars in a given area that are in process of being cut back (Fig. 2). The plan is to avoid leaving large stumps but to remove all the coal possible. The retreat is made by driving through the inner ends of the pillars and then running a series of short machine cuts across the end of each pillar until it is carried back 30 ft. This takes the place of the one long cut, which weakened the pillar from end to end. When the inner ends of a row of pillars have been cut back approximately 30 ft. with faces kept at right angles to the line of the pillar, the bottom is shot up, props are pulled, some of them fit for re-use in

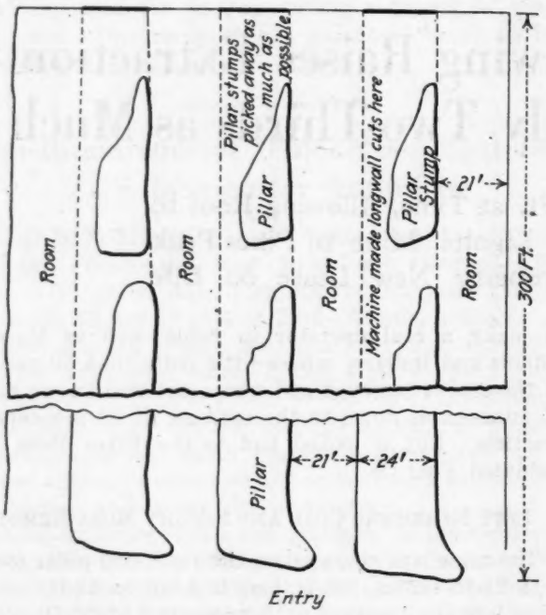


FIG. 1—OLD AND UNSAFE METHOD OF RECOVERY
The old pillars were mined away with picks or with longwall cuts of a machine. As much was recovered as possible, but the room caved in long before all the coal was extracted.

spite of the heaving tendency of the bottom; the roof coal is brushed and the area left unsupported. In a short time the whole area caves, and the weight on the standing coal is greatly relieved.

Then the pillars are ready for further drawing, men again re-enter the room with mining machines. Again the retreat is made toward the room necks. After each cave, of course, it is difficult to reach the tip end of the pillar. However, the next cut is started as close to it as possible and the stump that is left after a crosscut has been driven is small indeed, for if it were wide it would interfere with the next cave-in. Sometimes a shot is used to make the roof collapse.

Chain and barrier pillars are pulled by the same method. The 30-ft. cuts off the ends of these always start at the top of the grade, which is 5 per cent to the northeast. Working down the grade in this recovery of coal prevents squeezes. Mr. Thomas says: "If we tried to go uphill on chain pillars it would be like trying to hold a pit car on a slope without a block—take away the block and down the hill goes the car. If we removed those pillars from the bottom of the grade first, down would come the roof. We do not propose to have any squeezes." And they have not had any.

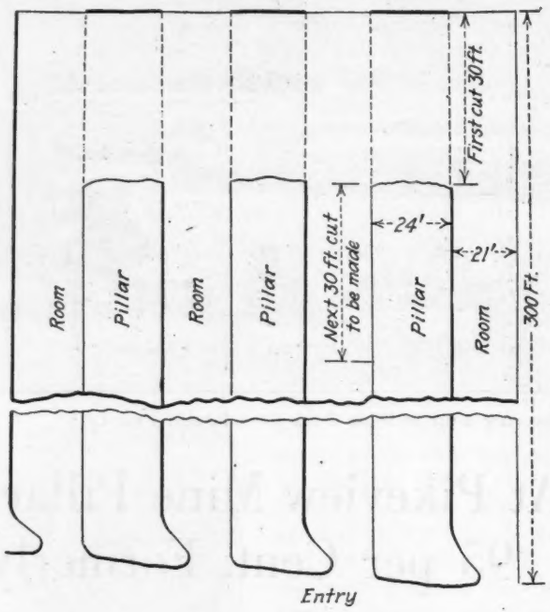


FIG. 2—NEW AND SAFE METHOD OF PULLING PILLARS
The ends of the pillars are cut back 30 ft. at a time with the faces parallel. The bottom coal is then lifted, and the top coal removed. The place is then allowed to fall, when another lift of 30 ft. is taken. By this method the extraction is almost complete.

By this method recovery is brought up to its maximum. In spots it is almost complete; but 95 per cent is a fair estimate of the average recovery, according to the superintendent.

Because of one factor the cost of drawing pillars in old abandoned workings is higher than in the new workings, where pillar drawing is a calculated part of the plan. That one factor is track laying. When the old workings were left, of course room and side-entry tracks were taken up. It costs something to re-lay them to get the pillars. In the new workings tracks will be left in the rooms after first mining and will be taken up only as the pillars are drawn.

The Pikeview mine is satisfactory not only because of its extraction record but also because its percentage of screenings is low. Intelligent supervision of miners, proper operation of the mine's six breast and two short-wall electric cutters, light shooting and above all a feeling of mutual friendliness and "square deal" between the men and their keen but entirely human superintendent, have reduced the proportion of 3-in. screenings to 30 per cent. This is extremely low for Colorado lignite even in mines where the coal is as hard as Pikeview lignite is said to be.

This low proportion of screenings is an item of great value to this company, especially as there is a large domestic demand for Pikeview lump within easy trucking distance of the mine. And the 30 per cent constitutes no problem of disposal, either, for practically the entire

FIG. 3

Bottom Landing

Taken from load side. Fourteen hundred tons can be caged in eight hours with the same equipment that used to handle 700 tons at best. The main entry has been concreted back 100 yd. and painted white. Henry Thomas, mine superintendent, is standing on extreme right. He believes a neat appearing mine makes the miners disposed to keep their workings in shipshape order.

FIG. 4

Removing Pillar

Note how the ribs were left arching the roadway. The pillar is being drawn back from room to room. The coal obtained is largely lumps which are well suited for the demands of the domestic market. When this coal and that from roof and floor is loaded the working place is left till the roof falls. The stratum over the coal is a crumbly sandstone, but a strong cap rock occurs a few feet above. Note how two cars are placed at one time, making the placing and gathering of cars an easy task.

FIG. 5

A Gathering Unit

The high car makes possible a narrow and short car of 3,500 lb. capacity. Note the braces on the side of the car to give support to a flat flare, giving increased carrying capacity. The illustration gives a good idea of the character of the roof.

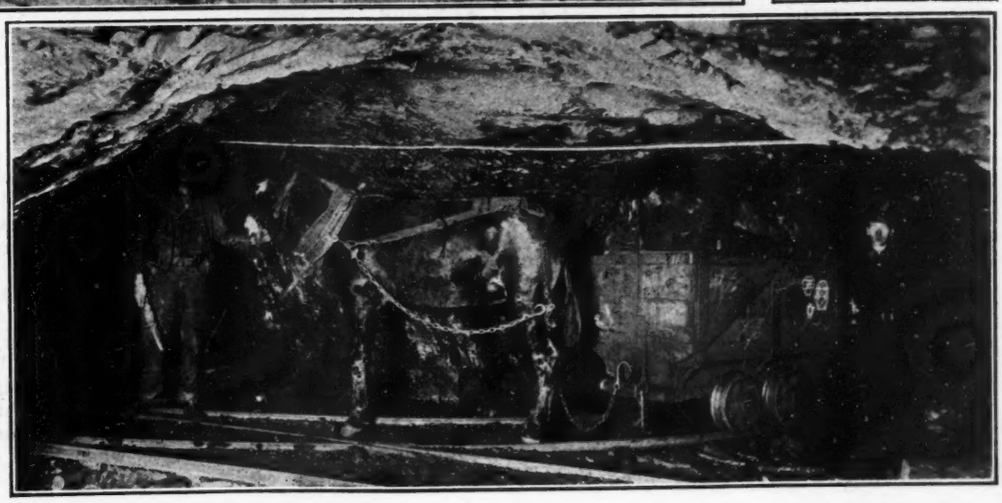


FIG. 6

Fleet of Coal Trucks

The size of the local domestic coal business of the Pikes Peak Consolidated Fuel Co. can be judged by the fleet of trucks. About 70 per cent of the coal goes to keep the home fires burning. The fine coal is used to reduce the gold ore of the Cripple Creek region. The coal eventually may be pulverized and used in that form or possibly a portion of it will be made into coke.

volume of screenings is taken by a local gold-ore reduction mill operated by the interests that control the coal mine. That particular supply, which averages 6,000 tons a month, fills a need for a long-flame coal for use in furnaces roasting Cripple Creek ore.

The lignite from this mine contains 22.04 per cent of moisture, 42.10 of volatile matter; 48.34 of fixed carbon and 9.56 per cent of ash. It has a thermal value of 10,441 B.t.u. It has given satisfaction even as pulverized fuel. During a recent American Society of Mechanical Engineers code test at Pueblo, Colo., with a 456-hp. Stirling water-tube boiler this particular coal was fired for the prescribed length of time. The engineers' report showed a boiler and furnace efficiency of 68.67 per cent. There is a possibility that some day an electric power plant will be built at the mine to burn pulverized Pikeview coal. The company also is convinced that this lignite will coke successfully and that if the market develops a large volume of it can be put through the ovens with profit.

So there is a vital company interest in what Superintendent Henry Thomas and his two foremen, H. O. Knapp and C. Meerdink, are doing out at Pikeview mine to recover great tonnages of abandoned coal. And it is with great interest that the company has seen the mine develop under Thomas' direction, from a 700-tonner to an operation having twice that daily capacity.

Experience in Creosoting Mine Timber

IN RESPONSE to inquiries, Thomas R. Clark, of the Clark Coal & Coke Co., who wrote the article "Creosoting Experience at Two Small Mining Plants," appearing in the issue of *Coal Age* of Sept. 6, p. 357, informs us that: "We find a number of men are unable to work around creosote on account of its pungent odor, and this is particularly true when that preservative is heated. We have met this difficulty by employing different men at the treating plant and we have found several that the creosote does not in any way affect, and these men have been assigned to the duty of dipping the timber.

"Carbosota, the preparation of creosote that we have used exclusively, penetrates timber easily and does not leave it sticky like many treated railroad ties I have seen. By allowing the timbers to stand out in the weather for thirty or sixty days, the creosote is entirely absorbed by the wood and treated and untreated timbers can be handled without any noticeable difference. Strange to say I have found some men to whom the smell of creosote is attractive.

"Speaking of the effect of fire on creosoted timber the preparation we use is highly inflammable, as we discovered when we attempted to burn out some of the iron barrels in which it was shipped. Undoubtedly the timbers are more easily fired than the untreated ones, but it seems that in the mine they soon become damp and, therefore, not susceptible to any small flame. At the Hanna City mine water is running down the sides of the shaft at practically all times, so that it would be almost impossible for this material to be set on fire."

Propose Adoption of 20-Ton Cars In Movement of Welsh Coal

An important step has just been taken by one of the British railway groups with the view of effecting economies in the rail transportation of coal. The Great Western Ry., which has practically a monopoly of the Welsh coal traffic, has been employing cars of ten-ton capacity, but having experimented with cars that will carry twenty tons, is satisfied that these higher capacity vehicles should be brought into general use without undue delay. A census taken by the Board of Trade in 1918 disclosed that there were approximately 116,000 privately owned coal coars in south Wales, mostly of ten tons capacity, and it is recognized that before any change can be made many difficulties have to be overcome at the pits and at the docks. As an inducement to the wagon owners, and irrespective of the fact that railway operating economies will not accrue until a considerable number of high-capacity cars are available, the Great Western Ry. announces that it is prepared at once to allow a rebate of 5 per cent on rates in respect of coal class traffic conveyed wholly over its system in fully loaded 20-ton cars.

How Skillful Use of Drill Press Minimizes Consumption Of Time in Repair Work

Shaping the Drill for Efficient Work—Changing the Cutting Edge for Soft Metals—Preparing the Work and Locating Hole Centers—Making a Flat Drill

By Gustav H. Radebaugh
Mechanical Department, University of Illinois, Urbana, Ill.

TO GET the most out of the drill press the tradesman's methods of operation should be employed. Construction and repair work on broken castings and damaged frame parts of mine mechanical equipment will generally call for drilling holes. When repairing mine machinery it will be found that several types of metals are used in their construction. Soft and hardened steel, cast steel, cast iron, bronze, brass, malleable iron and aluminum are all very commonly used in the construction of mine equipment. Therefore to get efficient results from a drill press it is essential that the drilling qualities of these metals be understood.

Several types of power and hand drilling machinery are used by tradesmen when doing repair work. It is important for the mine repair man to become acquainted with those tools, as it makes the planning and completion of a job much easier. Styles of these drills are shown in Fig. 1.

The hand drill is one of the most useful tools in the repair shop for drilling holes up to ¼-in. diameter. When drilling holes of small sizes the drill must be driven at a high speed to prevent the drill point from breaking. Many hand drills are supplied with a set of twelve drill points which are held in the wooden handle when not in use. This type of drill is much better for small drilling than the combination post drill, as a greater drill speed can be obtained and the feed pressure more easily controlled.

When it is impossible to get the job to the combination post drill when drilling holes ¼ to ⅝ in. in size, the breast drill is used. If holes larger than ¼ in. are being drilled to any depth in cast iron or soft steel a ⅛-in. hole should be drilled first with the hand drill. This operation makes drilling with the breast drill much easier. A spirit level is frequently supplied on this type of drill to assist the operator in drilling straight holes. When making holes larger than ⅜ in. considerable pressure must be applied to the drill to make it cut. The Armstrong Packer ratchet drill is designed for the larger sizes of drills. A brace is provided to support the ratchet and drills, the pressure being applied by the threaded nut on the top of the ratchet.

When drilling holes in pipe work, where a chain can be passed around the work, the chain drill attachment is used. It is driven by an ordinary carpenter bit brace. The feed to the drill is obtained by a screw arrangement which tightens against the chain. This tool will be found useful in drilling holes ranging from ⅜ to ⅝ in.

Many styles and sizes of post drills are on the market, but the one provided with a hand and power drive with automatic feed will be found as effective as any. When it is not necessary for the average mine shop to be provided with the best of these post drills a medium priced machine will give good service.

To make it possible to get the best service from the post drill press a few drills and tools must be provided. Fig. 2 shows several such tools. If the shop is provided with this equipment the heaviest or most delicate drilling job should not be too difficult. Post drill presses of different design require drills with special shanks. Care should be exercised when ordering drills to be sure that they fit the press for which they are ordered. Notice the shank design on the Coes drill and the Prentice drill. The other four styles are standard, but they require chucks or holding sleeves, and are not commonly used on this type of drill press.

The taper shank drill is held in the drill press spindle with the steel sleeve. This is the type of drill used in most commercial shops. The straight-shank drill is held in a chuck. They come in sizes from No. 60 up. It is not good practice to use straight-shank drills larger than ½ in. Chucks are provided with a shank that fits into the drill-press spindle. The straight-shank drills should be used in the mine shop. Justification for recommending the use of the straight-shank drill up to ½ in. for the mine repair shop is the large range of drill sizes for taps. The cost of this drill also is lower. If the shop is going to drill and tap holes for machine screws, such as found on power and mining equipment, it is obvious that the correct sized drills must be on hand.

The sizes of screws are somewhat confusing, as there are several standards existing, which many times makes the task of replacing screws on repair work an unpleasant and unprofitable job. To explain how the size of a medium screw is gaged and the drill chosen for the tap we can remove a screw from a job and by noting it in the drill tap gage, as shown in Fig. 2, it

TAP DRILLS
(Drill Sizes for Specified Taps)

Diameter of Tap, Inches	No. Threads to Inch	Drill for V Thread	Drill for U.S.S Thread
¼	16	7/32	7/32
..	18	11/64	...
..	20	15	...
5/16	12	I	17/64
..	13	W	...
..	14	17/64	...
3/8	12	21/64	21/64
..	14	23/64	...
7/16	10	25/64	25/64
..	11	15/32	...
..	12	29/64	...
½	10	27/64	27/64
..	11	31/64	...
..	12	33/64	...
9/16	9	31/64	31/64
..	10	17/32	...
5/8	8	35/64	35/64
11/16	7	39/64	39/64
..	8	11/16	...
3/4	7	1 45/64	1 45/64
13/16	6	1 3/4	1 3/4
7/8	6	1 53/64	1 53/64
15/16	5	1 27/32	1 27/32
..	5½	1 59/64	...
1	5	1 31/32	1 31/32
1 1/16	4½	1 63/64	1 63/64
..	5	2 1/64	...
1 1/8	4½	2 1/32	2 1/32

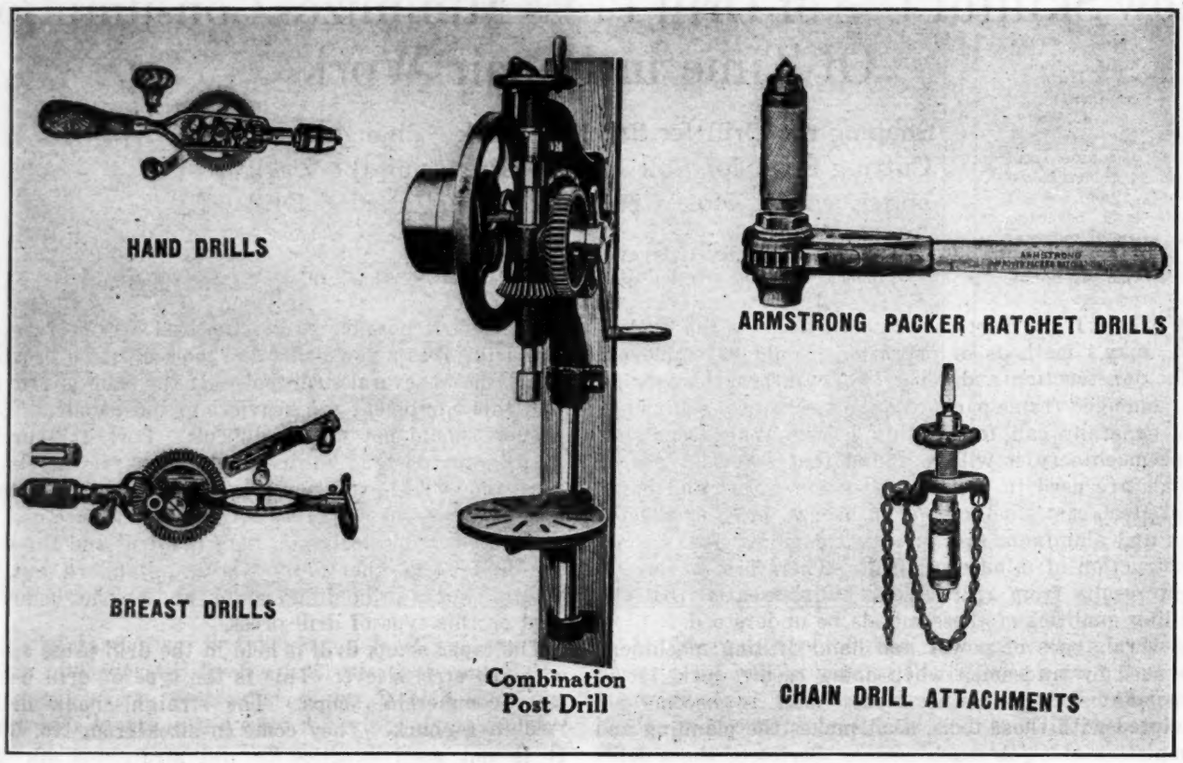


FIG. 1—VARIOUS TYPES OF POWER AND HAND DRILLS FOR SHOP MECHANICS

is found it fits in a certain hole. On referring to the machine-screw list we find that this is the body size for a No. 12x24 screw, meaning number 12 size and 24 threads to the inch, requiring a tap drill No. 15. This means that if this job is to be done a straight-shank drill, as shown in the drill-block set, must be supplied, as these sizes are not made with special shanks. These drills are sized in numbers ranging from 1 to 60, and are sized to fit all standard machine screws.

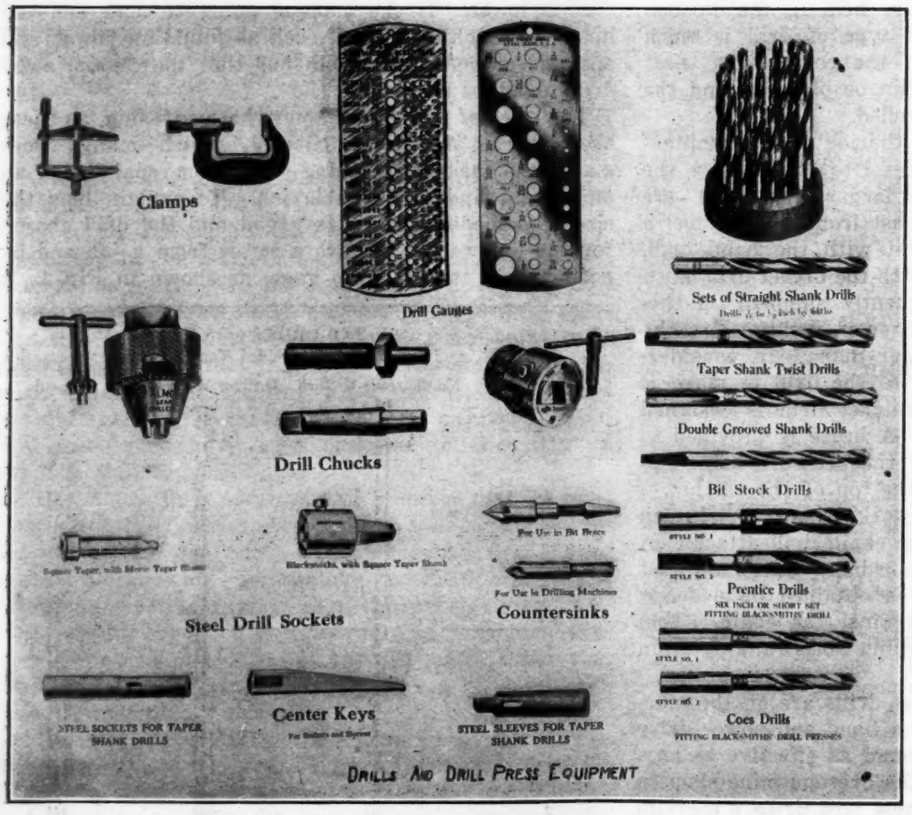


FIG. 2—DRILLS AND DRILL-PRESS EQUIPMENT NECESSARY FOR THE SMALL MINE MACHINE SHOP

A simple and convenient way of measuring these drills is by using the L. S. Starrett drill and tap gage, which is used to determine the size of screw, tap drill and body drill. Notice the sizes of machine screws and the tap-drill sizes marked on this gage. Drills used to drill a hole for tapping are called tap drills. Another useful tool is the fractional drill gage. This is used to measure drills from $\frac{1}{16}$ to $\frac{1}{2}$ in. by $\frac{1}{64}$ in. These gages are not expensive and will be found useful in the tool box of any mechanic.

Flat-head screws require a countersunk hole; the countersinks shown are provided with a straight shank for a drill chuck and a bit-brace shank for the carpenter brace. For light countersinking the breast drill is oftentimes used to drive the countersink.

In Fig. 3 three types of drill chucks are shown. The two chucks on the platen of the drill press cannot be used in the post drill unless the spindle has been bored out so that the taper chuck shank will fit. On this machine this has been done and the little time consumed on this operation has been worth while. The practice of having a setscrew on the spindle of a drill press is obsolete and is very dangerous. A tragic story could be written on the many accidents the setscrews on drill spindles has caused.

The post drill should be clamped to the post or wall with four ⅝-in. carriage bolts with washers. It should be located so that the chuck will be level with the operator's chest. This permits free operation.

Few operations on tools in a shop are more important than the grinding or sharpening of drills. To

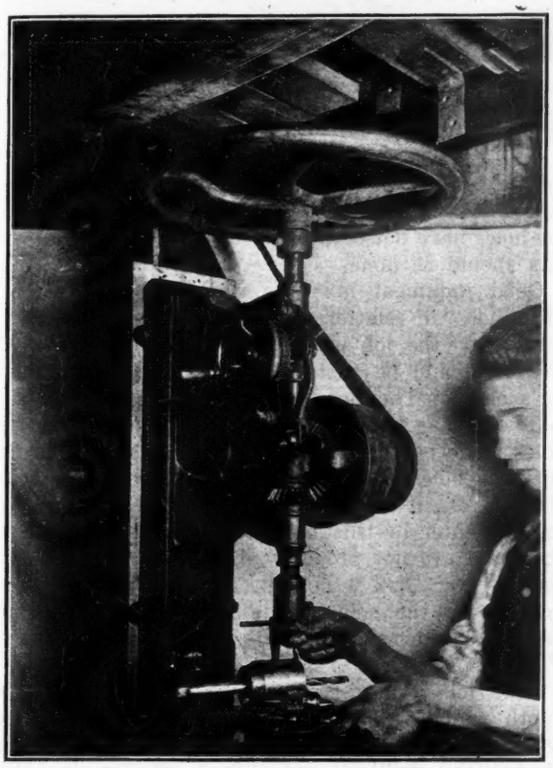


FIG. 3—THREE DIFFERENT TYPES OF DRILL CHUCKS COMMONLY USED

obtain satisfactory performance the cutting edges must have a proper and uniform angle of 59 deg. with the longitudinal axis of the drill. They must be of exactly equal lengths, and the lips of the drill must be sufficiently backed off or cleared. If this clearance is insufficient or imperfect, the drill will not cut. A simple method of determining the clearance is to set the point of the drill on a flat surface, holding a rule parallel with the drill; by revolving the drill its clearance can be checked, as well as the height of the cutting lip, which should be equal.

DRILL LIST FOR TAPS FOR AUTOMOBILE MANUFACTURER'S PRODUCTS
(S. A. E. Standard Thread)

Size of Tap, Inches	U. S. Threads per Inch	Size of Drill, Inches	Size of Tap, Inches	U. S. Threads per Inch	Size of Drill, Inches
¼	28	3	½	18	27
5	24	1	9	16	29
3	24	7	5	16	31
5	20	9	3	14	33
3	20	5	7	14	35
7	18	11	8	..	..

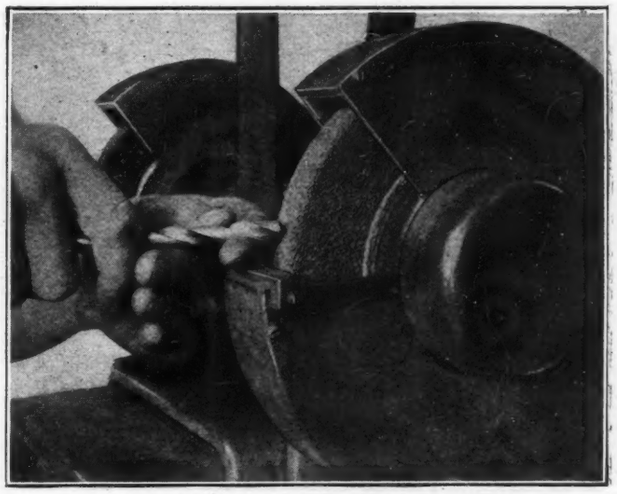


FIG. 4—GRINDING THE CUTTING EDGES

Most drills work best when the cutting edges are ground at an angle of 59 deg. with the longitudinal axis.

When grinding a drill, support the drill on the index finger, as shown in Fig. 4. By doing this a grinding balance and position are more accurately maintained. It is a good plan to have a drill in the shop that has never been reground for use as a sample to gage by. When grinding, do not draw the temper on the drill. To prevent this it is always good policy during the grinding operation to place the drill in water to cool it. Endeavor to preserve the original form of the drill. It has been ground by the manufacturer to insure rapid and satisfactory work.

Many times when a drill has been considerably shortened through use, the center becomes thicker, which causes the drill to work hard. Drills are made with the center thicker toward the shank to strengthen the drill. To overcome this, the center should be thinned, care being taken to remove equal amounts of stock on each side, so that the point will be kept central.

Drilling brass and babbitt requires the changing of the drill-lip clearance angle; often an operator finds difficulty in drilling these metals. The angle of keenness causes the drill to dig into the work. This crowds the drill to the point of jerking the work from the platen or throws the belt. To prevent this, eliminate

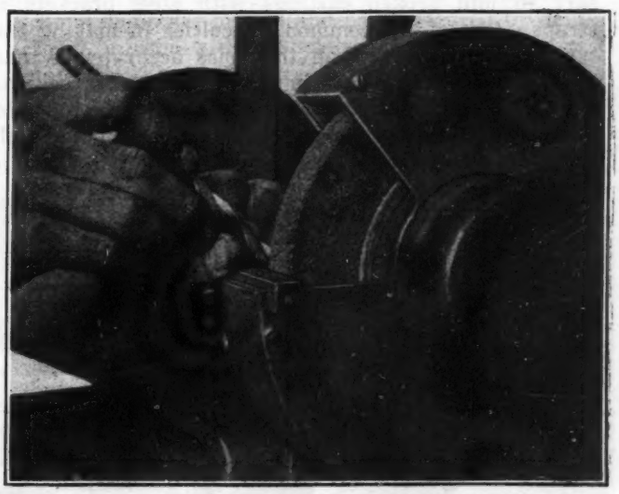


FIG. 5—CHANGING THE LIP EDGE FOR DRILLING SOFT METALS

Grinding the lip edge in a plane parallel to the axis of the drill changes the angle of keenness so that the drill has the scraping action necessary for cutting the softer metals.

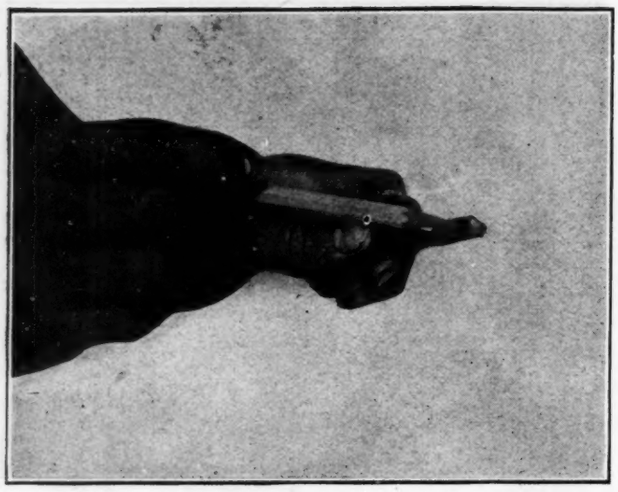


FIG. 6—DRILL PREPARED FOR CUTTING BRASS

The cutting edges of the drill look flat when properly shaped for cutting brass. This allows the drill to have a scraping action and thus operate without chattering.

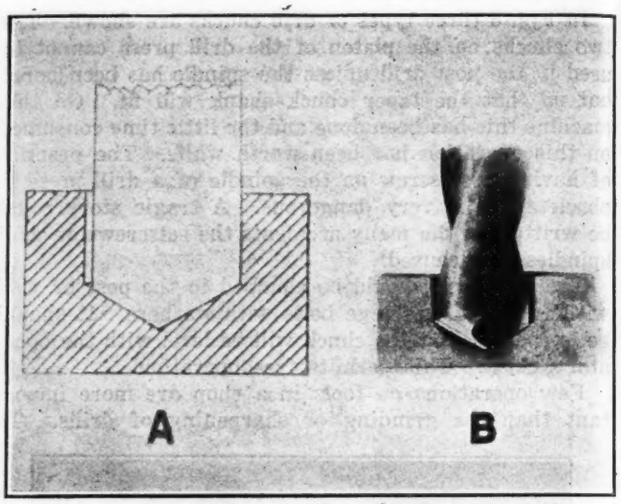


FIG. 7—IMPROPERLY SHARPENED DRILLS

A shows how the drill crowds to one side when the angle of the cutting edges are different. B shows the results of a drill ground with the cutting angles equal but the edges of different lengths.

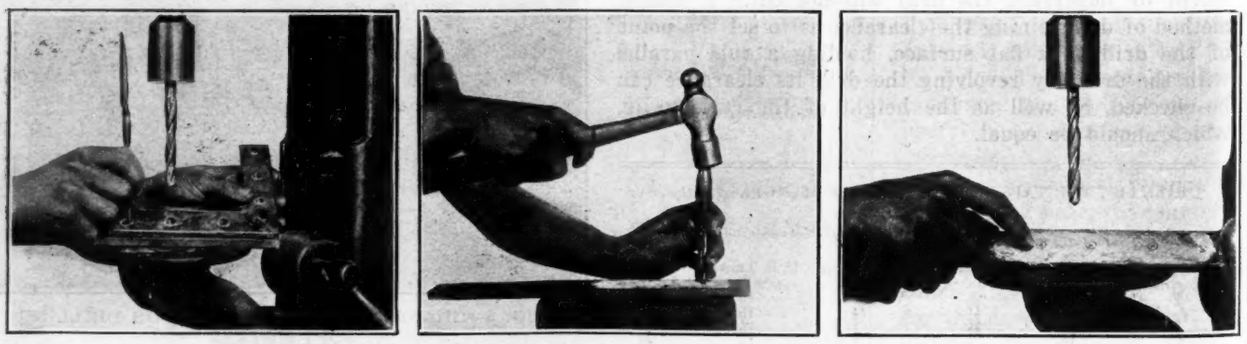
the angle of keenness on the drill lip by grinding the lip edge parallel with the axis of the drill as shown in Fig. 5. Note that the grinding is being done on the side of the wheel and not on the face. It must be understood that if the drill after being ground for brass is to be used for steel or iron drilling, it must be reground as explained in Fig. 4. When grinding a drill for brass a close inspection should be made after the grinding operation. Note in Fig. 6 how the cutting edge of the drill looks flat. A flat surface gives the scraping action which eliminates all the trouble when drilling soft metals.

Some results of improper grinding are shown in Fig. 7. If a drill has been ground with the point in the center but the angles of the cutting edges are different, the drill will bind on the side of the hole opposite to that side of the point which is cutting, which results in too large a hole and all the cutting will be done by the one cutting edge, as shown in Sketch A. If the drill is ground with equal angles but with the cutting edges of different lengths the hole will be drilled too large, as shown in B.

When making repairs on machines it often is necessary to join broken castings with steel brackets or straps. One of the common difficulties in making this type of repair is to drill the holes accurately. Inaccurate drilling makes it impossible to insert bolts or cap screws without filing out the holes. This indicates that not enough care was exercised in locating the drilling centers. Locating the drill center for a bracket job such as is shown in Fig. 8 can be made a short job by following the practice of the trained mechanic. If the holes have not been previously drilled in the bracket, this should be done.

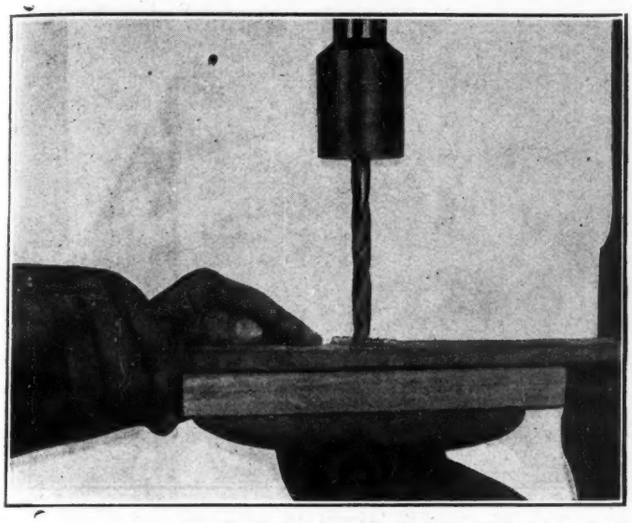
Good judgment must be used in properly locating these holes in relation to the part being patched. The surface on the job where this drilled bracket is to be located should be well chalked with starch or carpenter's chalk. The bracket should be put in place next and with a scriber or scratch awl the outline of the holes made on the chalked surface, as shown in Fig. 8 If these holes are going to line up with the holes in the bracket, it is obvious that the hole must be drilled in the center of this layout. Too many times jobs of this kind are not properly prepared for accurate drilling. Never drill a hole in a job unless the location desired for the hole is established by a center punch mark. The center punch is shown in use in Fig. 9. The finished layout is shown in Fig. 10.

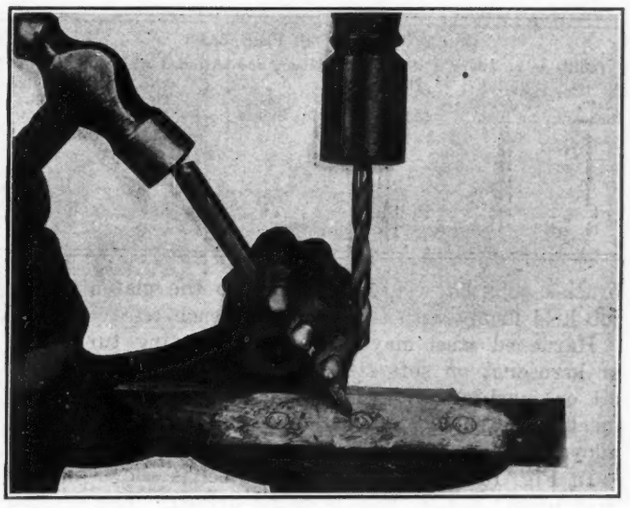
This job is now ready to be drilled, but only to a depth which will permit checking the drilling center with the layout. It is common for drills to "run" or change the drilling center from the original layout. This is the cause of many difficulties when fitting bolts or screws in the drilled holes. The holes do not line up, so it becomes necessary to file until a fit is made. To guarantee a good alignment of holes it is necessary to keep the drill within the layout circle. To do this the drill should be fed into the work to a depth of half the height of the drill point, as shown in Fig. 11. After



FIGS. 8, 9 AND 10—PREPARING THE JOB AND LOCATING CENTERS FOR HOBS

After chalking the metal, holes are scribed from the template and the centers for the holes located and punched.





FIGS. 11 AND 12—STARTING THE WORK AND CORRECTING THE CENTER

The drill is fed into the work about half the depth of the drill point, then if the hole centers are not in the proper location they may be shifted with a round-nosed chisel.

this is done the drill is lifted from the work and the drilling center is compared with the layout circle. If the drill has "run," it will show up very clearly, as the partly drilled hole will be to one side of the layout circle.

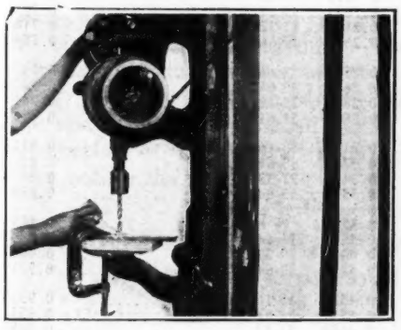
Our problem, then, is to bring the drilling position back to the correct center. This is done as shown in Fig. 12, where a round-nose chisel is used to change the center. This operation is known as drawing a hole. A hole cannot be drawn if the drill has penetrated the metal to the full diameter of the drill. It has been stated that the drill should be fed into the work only half the depth of the drill points. In doing this several attempts can be made in the drawing operation before the hole is drilled to full diameter. After the drilling position has been drawn to the center of the layout circle, the hole is ready to be drilled.

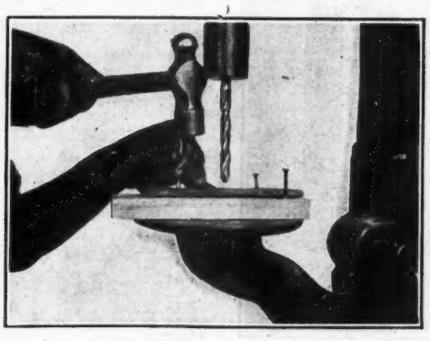
In reviewing the drilling job we have followed the trade practice of the mechanic: (1) Lay out the hole, from template or drilled bracket, using scriber or scratch awl; (2) center the job with the center punch; (3) drill the hole to check for position. If the drill "runs," the correct position is regained by using the round-nose chisel or gage. With the drilling position correct, the job is now ready to drill.

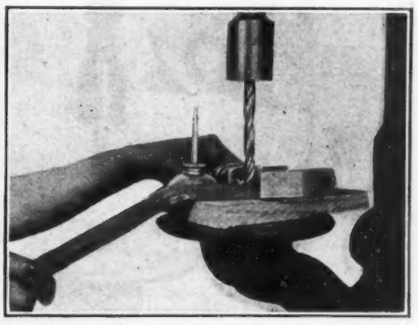
The speed and feed of drills used in mine repair drilling can be determined by actual practice and by exercising sound judgment. In commercial-shop practice when drilling steel a peripheral speed of 30 ft. a minute; for cast iron, 35 ft.; for brass, 60 ft., using a feed of 0.004 to 0.007 in. per revolution for drills larger than $\frac{1}{2}$ in. diameter is the prevailing practice. Another example of speeds for drilling is the comparison of the $\frac{1}{4}$-in. drill revolving at the rate of 611 r.p.m. and the $\frac{3}{4}$-in. drill revolving at a rate of 203 r.p.m. This speed will give the peripheral speed of 40 ft. per minute.

Often the work done on a drill press is large enough so that it will not move under the action of the cutting drill. However, many drilling jobs necessitate clamping the job to the platen of the drill press to insure accurate drilling and to prevent the breaking of drills. One of the most convenient clamps is the malleable iron screw clamp shown in use on the drilling job in Fig. 13. Note that on this job a block of wood is being used under the job, which protects the drill-press platen. Another scheme that is used on short pieces of stock being drilled is shown in Fig. 14. Many times pieces like this are held with the hand, but this is bad practice. If the drill should catch, there might be danger of injury to the hand. In drilling small holes the job may be held by hand, but it is good practice always to clamp a job when drilling holes larger than $\frac{7}{16}$ in. and thus avoid any possibility of accident or damage.

Many drills are broken and hands injured by drilling a bent bracket without holding it with a wrench or clamp. In Fig. 15 a typical job is shown. This type of job is known to the tradesman as one of the most dangerous of the drilling operations. It is better, then, in order to prevent the breaking of drills, that all







FIGS. 13, 14 AND 15—THREE METHODS OF HOLDING THE WORK ON THE PLATEN

A good mechanic can usually be recognized by the ways he handles his materials and prevents accidents and damage to equipment. Many jobs require special means for clamping or holding on the drill press.

TAP DRILLS FOR PIPE TAPS

(Drills to be followed with Pipe Reamer, and threaded with Pipe Tap)

Size, Inches	No. of Threads to Inch	Diameter Drill, Inches	Size, Inches	No. of Threads to Inch	Diameter Drill, Inches
⅛	27	⅜	1¼	11½	1½
¼	18	7/16	2	11½	2 7/32
⅜	18	9/16	2½	8	2 11/16
½	14	11/16	3	8	3 3/16
¾	14	7/8	3½	8	3 11/16
1	11½	1 5/32	4	8	4 1/16
1¼	11½	1 1/2	...	...	...

bracket jobs be securely clamped to the platen or the job held firmly with the monkey wrench.

Hardened steel may be drilled by using turpentine or kerosene; on soft steel and wrought iron, use lard oil or machine oil; with malleable iron, lard oil or machine oil should be used, and for aluminum and soft alloys, kerosene. Cast iron should be worked dry.

In Fig. 16 a job on hardened steel is shown on the drill press; a ⅜-in. hole is being drilled. The drilling of hard metal is facilitated by using turpentine as a cutting compound and by grinding off the sharp angles of the cutting edge of the drill, as explained for cutting brass and soft metals. This permits a heavy feed without chipping the edge. Practice will prove that somewhat slower speed of the drill will be required for drilling hardened steel than for soft steel.

In drilling holes in glass, use a brass pipe having an outside diameter equal to the size hole required. This pipe should have a peripheral sped of 100 ft. per minute. Use carborundum 80 to 100 grit or a valve grinding compound with oil. This mixture should be placed between the end of the pipe and the glass.

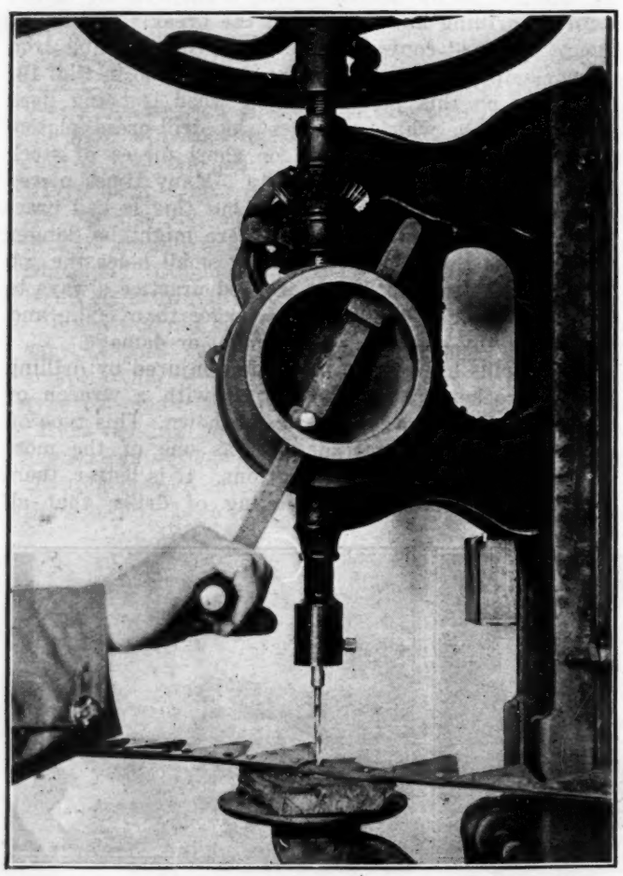


FIG. 16—DRILLING HARD STEEL

For hard metals a heavy feed is necessary at a slower speed than for soft steel.

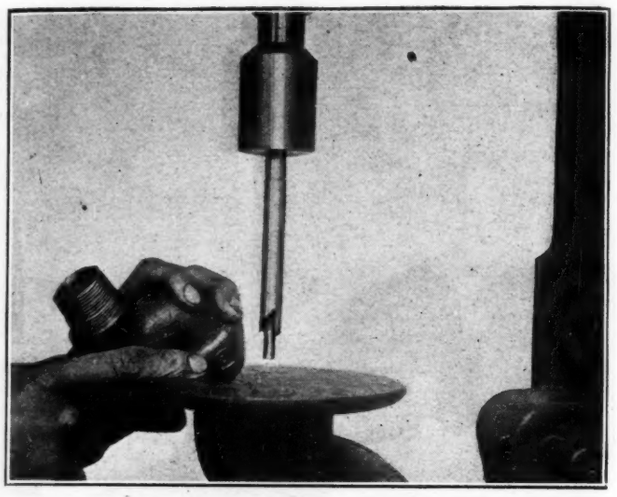


FIG. 17—SPOT FACING

This is done with the counter-boring drill. The pilot should fit the hole closely so as to prevent shifting.

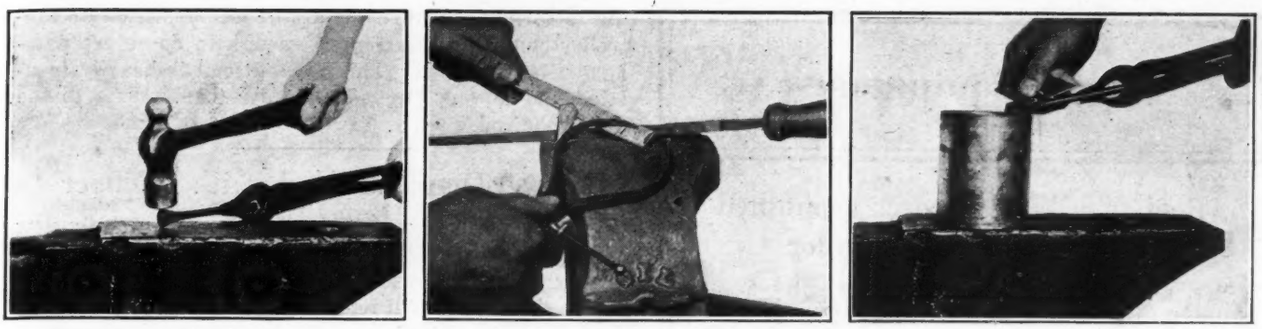
The glass must be supported by felt or rubber cushions not much larger than the hole to be drilled. When filing glass use turpentine. Holes up to ½ in. in diameter can be drilled in glass with a flat drill properly hardened. Use a mixture of turpentine and camphor for the lubricant.

Machined spots around a hole on machine frames are provided to give a true flat surface for the head of the screw. This operation is done with the counterboring tool shown in use in Fig. 17. This tool is provided with a pilot which guides the tool. Sizes of counter bores are gaged by the diameter of the surface it will smooth up and the size of the pilot. This tool has a shank that fits the drill chuck and is driven at about the same speed as a drill of equal size.

It sometimes happens that a hole must be drilled, but that a drill of the required size is not on hand. A shop that is equipped with a forge, however, can make up the size drill required. It is common practice for a commercial shop to make a flat drill to take care of

TABLE OF DECIMAL EQUIVALENT—PARTS OF AN INCH

1-64	0.0156	33-64	0.5156
1-32	0.0313	17-32	0.5313
3-64	0.0469	35-64	0.5469
1-16	0.0625	9-16	0.5625
5-64	0.0781	37-64	0.5781
3-32	0.0938	19-32	0.5938
7-64	0.1094	39-64	0.6094
1- 8	0.125	5- 8	0.625
9-64	0.1406	41-64	0.6406
5-32	0.1563	21-32	0.6563
11-64	0.1719	43-64	0.6719
3-16	0.1875	11-16	0.6875
13-64	0.2031	45-64	0.7031
7-32	0.2188	23-32	0.7188
15-64	0.2344	47-64	0.7344
1- 4	0.25	3- 4	0.75
17-64	0.2656	49-64	0.7656
9-32	0.2813	25-32	0.7813
19-64	0.2969	51-64	0.7969
5-16	0.3125	13-16	0.8125
21-64	0.3281	53-64	0.8281
11-32	0.3438	27-32	0.8438
23-64	0.3594	55-64	0.8594
3- 8	0.375	7- 8	0.875
25-64	0.3906	57-64	0.8906
13-32	0.4063	29-32	0.9063
27-64	0.4219	59-64	0.9219
7-16	0.4375	15-16	0.9375
29-64	0.4531	61-64	0.9531
15-32	0.4688	31-32	0.9688
31-64	0.4844	63-64	0.9844
1- 2	0.5	1	0.1



FIGS. 18, 19 AND 20—MAKING THE FLAT DRILL
It is important that the material for the flat drill be forged at the correct temperature and the lips shaped to the proper angle by filing. The temper color is made more easily visible by first cleaning with emery.

some drilling job that requires drills of special size. Flat drills must be made from high carbon steel. An old round file can be made into a flat drill. The stock can be forged to shape as shown in Fig. 18, but care must be exercised in working the steel at the correct temperature. The diameter of the stock regulates the range of the size drill that can be made.

The newly forged drill is next filed to size, checking the size with the caliper, as shown in Fig. 19. The angles are the same as the twist drill. It will be an advantage to have a twist drill by the job to check the angles and cutting edges during the filing operation. The next operation is the tempering of the newly shaped drill. When tempering for steel drilling, heat the drill point to a cherry red and dip in water; enough heat should be left in the shank of the drill to draw the temper. The point can be polished with emery cloth to make the temper color more visible. Quench when the temper shows up a light straw. These are the same operations that are followed when tempering a cold chisel, excpt that the temper color of the chisel is blue. If a flat drill is used for drilling glass, heat to a cherry red and harden in sulphurous acid.

The drill tables will be found useful around the drill press and in the mine shop. This is the type of information the commercial shopman has around him to help solve his drill-press problems. These tables give an opportunity for the mine-shop workman to take advantage of this valuable information and have it always available for any kind of drilling.

French Mines Soon Will Be in Full Operation

REMARKABLE progress has been achieved in the reconstruction of the French mining industry, systematically destroyed in war-time by the invading Germans, according to George S. Rice, chief mining engineer of the Bureau of Mines. Mr. Rice has just returned to this country, after completing a study, occupying several months, of conditions in the mining industries of France, Great Britain, Belgium, Germany, Poland, and Czechoslovakia. As a result of the splendid engineering skill employed in the restoration work, some of the finest coal-mining plants in the world have been constructed in the north of France. Thousands of miners' houses have been built, replacing those destroyed. These houses are quite attractive and most of them have gardens, which have been redeemed from trenched and blasted ground.

Much attention has been paid to welfare projects, with the result that the miners of northern France are undoubtedly better housed than those in any other part of the world. Underground, the mines have been recovered to such an extent that they are producing about 70 per cent of the normal coal output. When all the water has been pumped out of the mines, the coal production of northern France will be much greater than before the war.

World's Coal Output, January-June, 1923, Well in Advance of Last Year

World production of coal during the first half of 1923 amounted to approximately 666,000,000 metric tons, according to a summary of data received by the U. S. Geological Survey up to Oct. 15. This is an increase of about 79,400,000 tons, or 13.3 per cent over the corresponding period of last year. All the countries listed, with the exception of Austria, Czechoslovakia and Germany, have increased their production. The most notable increases were in the United States, the United Kingdom and Poland. The proportion contributed by the United States was 44 per cent of the total.

The world total of 666,000,000 tons includes an estimate for Germany based on complete data for January and February and incomplete data thereafter. It also includes estimates for those countries, representing about 5 per cent of the whole, for which no figures of production were available. The following table, prepared by W. I. Whiteside of the Section of Foreign Mineral Reserves, is subject to revision as final official figures are received. Lignite and brown coal are included; where possible they are shown separately.

PRODUCTION OF COAL IN PRINCIPAL COUNTRIES OF THE WORLD, JANUARY—JUNE, 1923
(In metric tons of 2,204.622 lb.)

Country	Metric Tons	Per Cent of Total
North America:		
Canada	7,912,610	1.19
United States	294,261,000	44.18
Other countries	(a)	(a)
South America	(a)	(a)
Europe:		
Austria: Coal	74,698	0.01
Lignite	1,242,196	0.19
Belgium	11,127,700	1.67
Czechoslovakia: Coal	5,919,835	0.88
Lignite	8,725,861	1.31
France: Coal	17,659,350	2.65
Lignite	433,741	0.06
Germany: Coal (b)	(c)	(c)
Lignite	(c)	(c)
Hungary	3,807,521	0.45
Netherlands	2,686,246	0.4
Poland	21,680,056	3.25
Russia	5,609,000	0.84
United Kingdom	143,051,102	21.50
Other countries	(a)	(a)
Asia:		
British India	10,074,000	1.51
Japan	13,745,000	2.06
Other countries	(a)	(a)
Africa:		
Rhodesia	250,447	0.04
Union of South Africa	5,222,674	0.78
Other countries	(a)	(a)
Oceania	(a)	(a)
Total	666,000,000	100.00

(a) Estimate included in total.
(b) Includes 2,688,654 tons from Saar.
(c) Estimate, based upon incomplete reports, included in total.

New Equipment

Reel and Trolley Switch Combined In Locomotive Controller

THE new type LM 67 controller recently developed by the Goodman Manufacturing Co., of Chicago, combines the motor controller and a transfer switch for use with locomotives having both trolley and cable reel. This transfer switch is operated from the same shaft as the reverse lever, the switch reverse lever and controller handle being within 10 in. of each other. When the controller is on any of the running points it is impossible to operate the transfer switch. In this way the danger that always attends the throwing of the switch from the reel to the trolley, or vice versa, when taking power, is eliminated. Larger space is provided in the cab of the locomotive by the use of this controller and the elimination of the large transfer switch usually found on most trolley and cable-reel locomotives.

FIG. 1—CONTROLLER WITH COVER

Note how conveniently the transfer switch handle is located with respect to the control handle, with which it is interlocked.

Adding the safety switch has taken nothing from the operating results of the controller itself. Interlocking the control and reverse transfer handle prevents changing the direction of the locomotive travel or switching the source from which the power must be taken—trolley or reel—without first moving the controller handle to the "off" position.

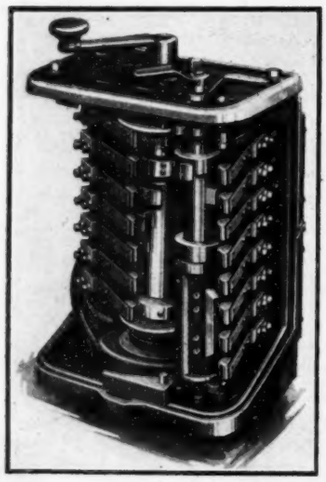


FIG. 2—INSIDE VIEW, ARC DEFLECTOR OFF

To operate the transfer switch, which permits taking power through the trolley pole or reel cable, the control handle must be in the "off" position.

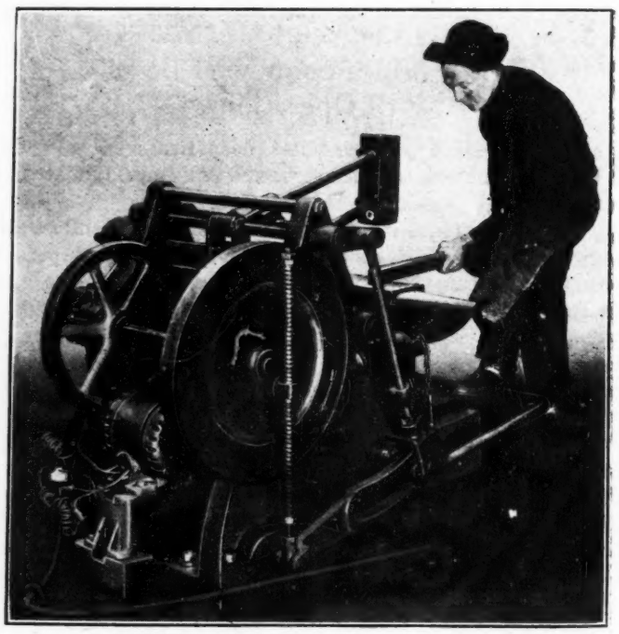
The three contacts and fingers making up the working parts of the safety switch are interchangeable with other fingers and contacts of the controller. In other words, all fingers and contacts of the main cylinder, reverse drum and safety switch are interchangeable. Easy adjustment of all fingers is made by screws, specially treated to resist rust. These screws keep the fingers always in proper position.

A large blowout coil in the bottom of the controller concentrates great energy where the large arc is formed. Before the arc of either switch or controller cylinder has strength enough to do severe damage, it is destroyed. This blowout coil is heavily insulated and is very rugged, in order to stand up to the duty required.

Power-Operated Blacksmith Hammer

THE blacksmithing hammer is a comparatively new device which is finding a place among the labor-saving equipment used around the coal mines. This mechanical helper will replace one or two human strikers in any blacksmith shop. The hammer strikes a maximum blow about four times as heavy as that of the average striker and is intended particularly for forging work that is too small to be done under steam hammers. The smith has complete control over every blow by means of a treadle running around the anvil.

As high as 140 blows per minute can be struck and for this reason work can be done more quickly and with only one heating. The anvil is of special patented design, having a planed base and a stand with adjusting screws to move the anvil forward or backward as required. The hammer requires but 1 hp. to drive and on a line shaft with other tools the power absorbed will average less. The individual motor-driven unit is most compact and offers numerous advantages. The motor is mounted on a small stand in the base and geared to a large driving gear on the main shaft.

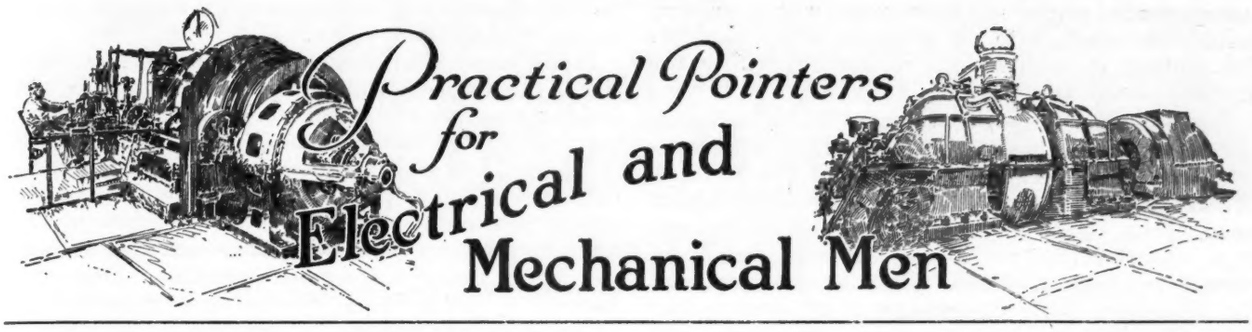


MOTOR-OPERATED BLACKSMITH HAMMER

When labor is short and overhead costs are high, such a device as this hammer works wonderful results and economies.

The striking is very similar to that of a hand swung sledge, the head first rises then strikes its blow and rebounds quickly from the metal. Operations requiring careful work can be performed with greater ease as the blacksmith has control of each blow of the hammer. As a consequence heavy welds, as well as light jobs, can be performed with great rapidity.

The Blacker Engineering Co., Inc., Grand Central Terminal, New York City, is the manufacturer of the complete outfit.



Severe Sparking at Trolley Wheel

WE ARE operating a Baldwin-Westinghouse locomotive rated at 250 volts, and are having trouble with the trolley wheels. Copper appears to burn off the trolley wire and deposit on the trolley wheel; this is accompanied by a constant glow from the wheel and severe sparking. Our track circuit is well bonded and there is no moisture on the wire.

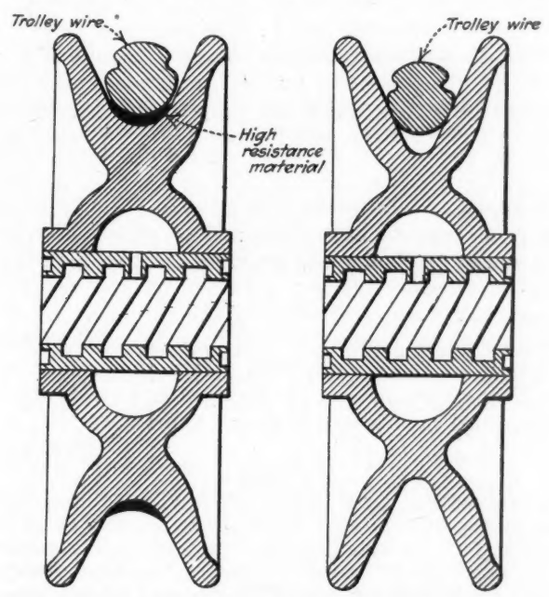
I would appreciate some discussion on this subject from *Coal Age* readers. FRANK PARKER,
New Castle, Ala. Mine Foreman.

Sparking at the trolley wheel may be caused by any one or a combination of troubles. The first thing to do would be to investigate the electric circuit. This would consist of a thorough test of the voltage when the locomotive is drawing a heavy current, to determine whether or not the motors are receiving approximately proper voltage, then a test of the return circuit, which although well bonded may be open-circuited at important points.

Series-field troubles exist in many locomotive motors and frequently go unnoticed for years. Short-circuits in the fields can be located by testing as described in the Aug. 9 issue of *Coal Age* and by reading the voltage drop across each coil by means of a voltmeter.

After testing the locomotive equipment, including the motors, controller and resistance, it will then be proper to look at the trolley wheel. The composition of the metal in the trolley wheel should be such as will resist wear and sparking. Some metals blister and burn whenever an arc is formed upon them. The burned material usually is forced into a flaky mass which packs itself down into the groove of the trolley wheel and thus increases the resistance to the current which is taken from the trolley wire. The increased resistance causes more heating at the wheel and further aggravates the tendency to spark.

Obviously, anything which would prevent the gathering of this burned material would give better contact at the junction of the trolley wheel and wire. This is sometimes accomplished by deepening the groove in the trolley wheel into a narrow V shape, as shown in the cut herewith. This allows the wire to have a wiping action on the side of the groove, thus giving a clean low-resistant contact with the wire.



TROLLEY WHEEL WITH DEEP, NARROW GROOVE

These figures show how the high-resistance material packs itself into the groove and how the groove may be shaped to have a wiping action on the trolley-wire contact.

Court Rules with Reference to Equipment Bought Without Written Warranties

THE question of when and under what circumstances a buyer of machinery will be justified in relying upon the warranties and representations of a salesman as to its condition has been the cause of many lawsuits. And while the question cannot be answered by the statement of a hard and fast rule, because each case of this kind must necessarily be decided in the light of the particular facts involved, yet it may be stated broadly that where such a purchase is reduced to writing the buyer should not rely upon any warranties which have been previously made, unless they also appear in the writing.

This is true because it is an elementary rule of law that prior oral warranties and representations are deemed to have been merged in any subsequent written contract, which precludes the latter from being changed or varied by such prior oral warranties or representations. It follows that where a written order for machinery is given, such order will be deemed to constitute the contract, and as a general rule only the terms as they appear therein may be considered by a court or jury in the event of later dispute.

The application of this rule of law and the danger to the industrial executive in losing sight of it when machinery or equipment is being ordered is illustrated in a most striking and interesting manner in a recent West Virginia court case between a coal company and a Virginia equipment company.

The facts and circumstances out of which the action grew were as follows: The coal company, the plaintiff, purchased from the equipment company, the defendant, a second-hand coal-cutting machine to be used in its mine. This machine was purchased from a traveling

salesman in the employ of the defendant who, it appears, brought the machine to the attention of the plaintiff. The contract of purchase was reduced to writing and provided as follows:

"——— (name of equipment company), ——— (name of city), West Virginia. Date July 1, 1921, bill ——— (name of coal company), address ———, W. Va., ship to same address, same custom on No. ——, ship freight, when, terms, salesman. ——— Type coal-cutting machine, second hand, f.o.b. ———, Alabama, freight allowed, sight draft at $3,500. Signed ——— (name of coal company). ———, Superintendent."

At this point it should be noted that the above contract is in the form of an order, complete within itself in respect to terms and subject matter, though it does not contain any warranty or representations relative to the condition of the machine ordered. The order, as will be noted, simply stipulates for the shipment of one —— type coal-cutting machine; price $3,500; sight draft attached.

The machine in question was shipped, and received by the plaintiff, who paid the sum of $3,500 upon its receipt. Upon trial, however, the machine proved unsatisfactory in a number of respects, and a dispute resulted between the plaintiff and the defendant which culminated in the plaintiff instituting a lawsuit in an attempt to recover the purchase price.

In this action the plaintiff, among other things, sought to recover upon the ground that the salesman had warranted the machine as being in a certain condition, and that upon receipt the machine was not as represented. The authority of the salesman to warrant the machine was denied by the defendant, and evidence was introduced to show that the machine was in fact sold subject to inspection and prior sale, and that the defendant had refused to warrant the machine in any way.

In the face of the contention of the plaintiff and the conflicting evidence introduced by the parties the outcome of the case turned upon the question of whether or not the evidence relative to the alleged warranty of the salesman should be received in view of the fact that the negotiations for the machine were subsequently reduced to writing and, as noted above, this writing did not contain any warranties whatever. The case reached the Supreme Court of Appeals of West Virginia on appeal, and in passing upon this point the court decided as follows:

"The authority of the salesman to warrant the condition of the machine is specifically denied. The written order signed by purchaser contains no express warranty of this machine. The only description given is '—— type coal-cutting machine, second-hand.' Can plaintiff ingraft a warranty upon this written order to conform to the statements of the salesman as to the condition of the machine? We think not. . . . If plaintiff had desired, at the time of signing the written order, to have the condition of the machine guaranteed, as represented by the salesman, he should have written the same in the order. . . .

"The contract is complete and unambiguous. . . . This order, stripped of its superfluous verbiage, means that a second-hand coal-cutting machine was to be delivered to the plaintiff f.o.b. Birmingham, Ala., freight to be paid by the equipment company, and a sight draft for $3,500 was to be attached to the bill of lading, the shipment to be traced and hurried. This, after being accepted by the defendant, constituted the contract, and contemporaneous oral statements of the salesman cannot be ingrafted upon it. . . ."

In conclusion, after considering other points not material to the subject of this discussion, the higher court affirmed a judgment that had been rendered in the lower court in favor of the defendant, holding, as outlined in the opinion, that the plaintiff was not entitled to recover the money it had paid for the machine, on the strength of oral warranties alleged to have been made by the traveling salesman of the defendant, when such warranties did not appear in the written order as subsequently signed.

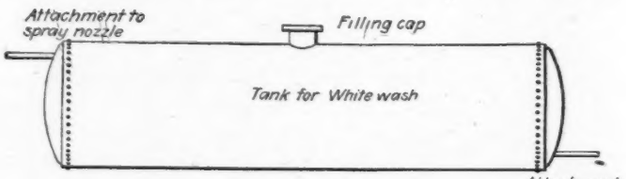
The above case was well considered and constitutes a valuable decision on the point decided. It illustrates in a striking manner the importance of having all the terms, warranties and representations relative to the condition of machinery or equipment embodied in the final contract when reduced to writing. Truly, in the light of the facts involved, the above decision becomes one well worth having in mind by every industrial executive when ordering machinery or equipment under circumstances similar to the one in the case reviewed.

LESLIE CHILDS.

Making Whitewashing Easy

AT MANY of our mines there always is a considerable amount of work being done in whitewashing the foot of shafts, barns, pumprooms, and safety holes on planes and slopes. In several places a small hand pump is used to force the liquid from a tank through a nozzle onto the object to be whitewashed. This is a slow and tedious task especially for the man who works the hand pump.

To overcome this difficulty we have built a small truck and mounted on it an unserviceable hot water boiler, or even a large pipe will do. We cut a large hole into the upper side of the boiler, so that the liquid can be poured into it. When the tank is full the cap is screwed back



WHITEWASH TANK WITH AIR PRESSURE CONNECTION

The air pressure forces the whitewash to the hose and nozzle attachment and the work of whitewashing is done both quickly and effectually.

to prevent any whitewash leaking. To one end of the tank is attached a hose connected to an air line; the other end of the boiler has an attachment to the nozzle. When all is ready the air is turned on and regulated by means of a valve attached to the air line. By this arrangement the liquid is forced from the tank through the nozzle by the air pressure. With an air hose and a small auxiliary line on the nozzle a large area can be whitewashed in this way in a very short time.

STUDENT.

IN CONNECTION WITH MINE VENTILATION studies being made at the experimental mine of the Bureau of Mines, Bruceton, Pa., 152 tests recently were made with variations in the velocities and conditions in the airways. Relative velocity heads were determined for timbered entries, entries obstructed with loaded cars, entries obstructed with empty cars, cut-throughs with and without brattices, and for various vanes for conducting air around right-angle turns.

Problems of Operating Men

Edited by James T. Beard

Working Three Seams of Coal With Rock Partings

Three Letters Suggest Various Methods—Main Features Maximum Extraction of Coal and Elimination of Waste Material Handled

REFERRING to the inquiry signed "Presto," which appeared in *Coal Age*, Aug. 9, p. 219, and asked for the best method of working three seams of coal separated by slate and shale partings of considerable thickness, permit me to offer the following:

Summarizing the case presented, we have a hard sandstone roof covering the upper seam, which will average 42 in. of hard splint coal." Below this is a hard sandy shale averaging 60 in. and under that a second seam of coal having an average thickness of 33 in. Then comes another parting of medium hard slate averaging 21 in., beneath which is a soft clean coal 12 in. in thickness.

In all, we have an average of 7 ft. 3 in. of coal, the mining of which will require the handling of 6 ft. 9 in. of rock forming the two partings in these three seams. This is almost a fifty-fifty proposition of coal, and rock and the space left after the coal has been extracted appears to be hardly sufficient for storing the waste material a portion of which would have to be hauled out of the mine.

Essential Features Suggests Proposed Plan

In my opinion, to work this as one seam would be a dangerous undertaking for the safety of the workmen, owing to continual falls from the coal face and the sides. While there are doubtless various methods of working these seams, the essential features to be considered are the complete extraction of the coal, as far as that may be practicable, and the elimination of the waste material requiring to be handled.

Briefly explained, my plan would be to develop the bottom and middle seams first. I would adopt the panel system of working, leaving enough pillar to comply with the requirements of the surface conditions, which are not mentioned in the inquiry. These two lower seams will average 45 in. of clean coal, with an average of 21 in. of rock parting, making a total height of 66 in. and affording plenty of room to gob the refuse.

When the work in the two lower seams has been developed sufficiently, I would drive a rock panel up through the 5 ft. of hard sandy shale, on a grade that would afford easy haulage from the top seam. The haulage roads in that seam can be laid out directly over those in the lower seam if that is well timbered; or, as some will prefer, the roads in the top seam can be centered over the pillars in the lower seam.

This plan will eliminate having to blast the hard sandy shale, which in my opinion makes a fine roof for the working of the two lower seams. Besides eliminating the necessity of handling this 5 ft. of rock, the plan insures that the top coal will be absolutely clean if proper care is taken in its mining.

As quickly as a panel is finished in the top seam, the work of extracting the pillars in that seam can be started and when that is well under way similar work in the lower seam can be undertaken. It is my believe that, by this means, it will be possible to get out most all of the coal and leave the refuse in the mine.

Clinton, Ind. W. W. H.

MY PLAN of working the three seams under discussion in *Coal Age*, while having in view a maximum percentage of production per man per day and economy of working, would be to follow somewhat the outline given by the inquirer, in the issue, Aug. 9, p. 219, though differing from this method in certain details.

Starting in the combined bottom and middle seam, I would drive an entry and air-course on the double entry system, turning rooms on 90-ft. centers to the right and left of the main heading. These rooms should be opened out to a width of 40 ft., leaving 50-ft. pillars of coal between them. I would lay single tracks on the entry and air-course and double tracks in all rooms.

All entries and rooms should be driven to the boundary, or to the meeting point, taking out all the coal in the two lower seams and stowing the waste material of the parting between the two tracks in each room. When the entries have reached the boundary line and the rooms worked to the limit on each side, my plan would be to start the work of retreating, by dropping the shale parting and taking down the top coal, lifting the track as the work proceeds. The coal can be loaded off the shale just as it falls. In doing this, it will be unnecessary to handle or break up the parting material, which will save much work that would otherwise be required.

Then, when the work has been carried back to the entry, I would split the 60-ft. pillars separating the several rooms, by driving a 30-ft. room in each pillar As these rooms reach their limit, I would follow the same plan in retreating, taking down the top coal and loading it off the shale where it has fallen.

The two 10-ft. pillars remaining in each case can then be abandoned, as their extraction would be too dangerous and difficult to undertake and the value of the coal lost would not warrant the risk. A. G. Buchanan.

Flattop, Ala.

THE plan of working three seams of coal separated by thick partings, as suggesteed in the inquiry signed "Presto," *Coal Age*, Aug. 9, p. 219, does not appeal to me as feasible. He suggests keeping the workings in the two lower seams a little ahead and then dropping the hard sandy shale to get the top coal. Not only is there too much stone to handle in this manner,

but there are too many hazards in the undertaking and when the whole weight comes on it would be difficult to control.

It is my belief that the best way to get out this coal is to handle the three seams as two distinct propositions. In my opinion, the top seam should be worked out on the advancing longwall plan. When the main entries have been driven far enough from the shaft or the slope, cross-entries should be turned to the right and left while keeping the main entries going.

When the main roads have reached a point, say 100 ft. beyond where the cross-roads were turned, the former should be widened into a "mothergate." This should be driven forward at a width of 10 or 12 yd. At the same time, cross-headings should be started to the right and the left, driving these 10 yd. in width. Tracks should be laid in the center of each opening.

General Plan of Longwall Work

As in all longwall work, the top should be brushed on the roads and the waste material used for packs to support the roof. On the cross-headings, gateways should be turned every 10 yd. and driven parallel to the mothergate. In this plan, the mothergate will be making a loose end for each breast. This will continue for ten gateways on either side of the mothergate. At this distance, 100 yd., a chute should be driven back across 100 ft. of solid coal to reach the cross-headings previously mentioned. When this has been done, the coal beyond can be taken out through this chute and the old road abandoned. Also, new cross-headings should be started from the mothergate at intervals of 60 yd. and driven right and left, each cross-heading cutting off the gateway below as it advances.

As development proceeds, the chute just mentioned should be extended to meet the next pair of cross-roads driven from the mothergate. If this plan is followed, it will permit all of the coal to be taken out in the top seam. In the meantime, the middle seam can be worked out, taking the bottom seam along with it on the "bord-and-wall" or room-and-pillar system. In my opinion, that method is better than the block longwall or longwall panel system. The partings of medium soft slate varying from 18 to 24 in. will form good material for stowing in the bords as waste. I believe the hard sandy shale varying from 48 to 72 in. in thickness will make a good roof in working the lower seam and the plan will be far less dangerous than to attempt to work the three seams as a single proposition. PICKS.

Neffs, Ohio.

Novel Plan of Wetting Bug Dust

Application of water to cutterbar on machine—Plan approved by Mine Inspectors Institute—Scheme requires machine sent to shop for cutting groove.

WHEN reading the report of the last annual convention of the Mine Inspectors Institute of America, held at Pittsburg, Kans., *Coal Age*, July 19, p. 113, and continued on page 149 of the following issue, I was pleased to note the remarks of Frank Hillman, safety engineer, Woodward Coal & Coke Co., regarding the application of water to the cutterheads of the mining machines, in the mines of the T. C. I. & R.R. Co.

The scheme, as briefly described by Mr. Hillman, would seem to be more simple of application than is actually the fact. He states that the plan is to loosen the plate on the cutterbar of a mining machine and lay, in the groove therein, a half-inch pipe by which water is conveyed to the cutting teeth. When the machine is running the water mixes with the fine dust, converting it into mud and rendering it harmless.

Rotary Dumps Installed Underground

As a safety measure, the plan is certainly a great success. It was originally intended to eliminate the dust trobule that grew out of the installation of rotary dumps, by that company, on their shaft and slope bottoms. The coal is dumped from the mine cars into hoppers and loaded into skips for hoisting.

These dumps being situated on the main intake airways, large quantities of dust were previously carried into the mine on the air current when the cars were being dumped. Some of the dumps are operated by electric motors, which increase the danger from the possible arcing of the current in the presence of the dust-laden atmosphere. By the adoption of the scheme of applying water to the cutterbars of the machines the dust problem is practically solved.

It is well known that the use of mining machines creates a dangerous percentage of dust, which is thrown into suspension in the air at the working faces. The result is that a dust explosion is liable to be caused, at any moment, by the blowing of a fuse or the sparking of the motor. Attempting to eliminate the danger by spraying has not proved satisfactory.

Mine Inspectors Approve the Plan

It is gratifying to note that the convention of mine inspectors mentioned went on record by a resolution approving the plan of applying water to the cutterheads of mining machines when in operation. It is only fair, however, to explain that the adoption of the plan is not as easy as may be supposed. It will be found that the removal of the top plate is quite a serious matter, as it involves taking out sixty-five half-inch rivets and three ¾-in. rivets, in the shop on the surface.

Moreover, when the plate has been removed, there is no groove in which to lay the half-inch pipe, and it is necessary to cut a slot from 5 to 7 ft. in length, in a slotting machine. Comparatively few mines have machine shops suitably equipped for doing this class of work and only those companies who are safety enthusiasts will undertake the job of remodeling their machines in the manner described.

In my opinion, what the T. C. I. & R.R. Co., has accomplished in this respect has solved the problem for all machine mines. I believe the scheme they have evolved will prove a valuable help in bringing such mines close to being 100 per cent dust proof, particularly if the further precaution is taken of spraying the coal after shooting. My observation is that much fine dust covers the coal shot down and, unless spraying is done after shooting, this dust is distributed on the roads.

A brief outline of the work of remodeling a machine for the purpose of applying water at the cutterhead in the manner mentioned will no doubt be of interest. As stated, the top plate is removed by taking out the sixty-eight rivets and the bar sent to the slotting machine. A groove is cut in the bar, starting 3 in. in front of the gear housing and making a turn of 45 deg. inward when reaching a point about 9 in. from the sprocket wheel, between the left and right sidebars.

In this slot, a copper pipe is laid allowing the end of the pipe to extend 6 in. beyond the end of the groove.

This 6-in. extension is made to run parallel to the right-hand sidebar and made to point toward the kerf, so that the water flowing from the pipe under pressure will play on the teeth of the sprocket wheel and be carried by it and its own pressure to the cutting bits in contact with the coal.

At the other end, a hole is drilled in the top plate and a short nipple inserted, which is attached to the copper pipe beneath. To this nipple is connected a half-inch pipe, having a 1-in. strainer and a stop valve. This half-inch pipe is carried along the side of the gear housing to which it is attached by metal straps. The connection between the pipe and the nipple on the cutterbar is made by rubber tubing, which with the piping is protected from injury by an auxiliary housing of sheet steel bolted to the gear housing with spacers between.

The water is supplied from the regular spraying system, which is kept close up to the face of all working places. The system consists of 4-in. pipe on the main entries, 1½-in. pipe on the cross-entries and ¾-in. pipe in the rooms. The water is that discharged from a pump under a pressure head of 250 ft. Each machine runner is supplied with 50 ft. of hose to connect his machine with the spraying line. This length of hose enables the machine to cut rooms 35 ft. in width.

The closest supervision is maintained by the company over all its workmen. The firebosses make two visits a day to each working place. They and other officials are instructed to observe the condition of the machine cuttings and report if any are found dry. Each machine runner is instructed to consider his machine out of commission if, for any reason, the water fails to pass through the pipe with sufficient pressure and in quantity to keep the bug dust thoroughly wet when cutting. Instant dismissal is the penalty for failure to comply with instructions.

Bayview, Ensley, Ala. JOHN WALLS, SR.

Inquiries Of General Interest

Ignition of Gas by Sparks from Falling Rock Possible

Hard Siliceous Roof Rock Falling Emits Sparks of Great Intensity—Cause of Bellevue Mine Explosion and Other Disasters

WE ARE anxious to obtain reliable information in regard to the possible ignition of gas by sparks that may be struck by pieces of rock falling from a hard sandstone roof in a mine. Assume a drift mine opened in a 5-ft. coal seam and developed to an extent such that there is a large robbed-out area covering approximately 660,000 sq.ft. Again, suppose a general fall of roof occurs in this area some distance back from the edge of the pillars, which are being drawn.

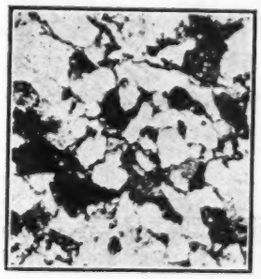
We will say there is a small amount of inflammable gas hanging in the roof of this section from which the coal has been mined. Is it reasonable to suppose that this gas can be ignited by sparks struck by rock falling from the roof? Or, is it possible for the fall of the rock to stir up a cloud of dust that could be ignited by the same spark? Any information that will make clear the possibility of such an occurrence will be much appreciated.

G. R. LUKE, General Foreman,
Benham, Ky. Wisconsin Coal Co.

As early as 1896, when an explosion occurred in the Maindy Pit, Glamorgan County, South Wales, the disaster was attributed to sparks struck by rock falling from the roof in an abandoned area of the mine. It was well known that gas was present, it being difficult to keep the place free from such accumulations. At that time and since when a mysterious explosion has taken place and the suggestion made that the ignition was caused by sparks struck by flinty rock falling from the roof, it has always been met with expressions of doubt and even ridicule.

In the explosion at the Maindy Pit, Nov. 8, 1896, a practical test was made to prove that the assumed cause of the disaster was not only possible but probable, no other source of ignition being known to be present in the mine at the time. By way of experiment, a box measuring about 3 ft. on the cube was equipped with a rotating spindle to which pieces of the rock in question were attached. Similar pieces of the same rock were fastened to the sides of the box in a manner to be struck by the rock attached to the spindle. The box was then filled with an explosive mixture of gas and air and a violent explosion followed when the spindle was rotated. The same experiment was repeated with the box filled with an atmosphere of dust-laden air, no gas being present. The fact that no explosion followed in this case suggested that the sparks struck by the rock were not of sufficient intensity or volume to ignite the dust-laden air in the absence of gas.

Another instance in which the cause of the explosion has been attributed to the ignition of gas by sparks struck by rock falling from the roof is that of the Bellevue mine explosion, which occurred Dec. 9, 1910, when 37 out of 47 men, who were in the mine at the time, lost their lives. The Bellevue mine is one of a group of three mines worked by the West Canadian Collieries Co., Alberta, Canada. A series of explosions had occurred in this mine from seemingly mysterious causes, within three months of each other. In the first explosion, Oct. 31, 1910, and in the third explosion, Jan. 28, 1911, there was no one in the mine at the time. An account of this explosion is found in *Coal Age*, Vol. 2, p. 457. The seam consists of 13 ft. 2 in. of coal containing three 1-in. bands of bone coal and dirt. The coal is underlaid with a hard floor, while the roof is a hard siliceous sandstone, the accompanying illustration at the left being a microscopic section of the rock.



MICROSCOPIC SECTION OF ROCK

When a specimen of this roof rock is struck a glancing blow with a hammer, the portion struck will glow red hot, for an instant, in the dark. An analysis shows that the rock contains some bituminous matter, the apparent combustion of which would account for the observed glow when the rock was struck, sufficient heat being generated by the blow to cause the ignition of the bituminous matter.

or the gas generated from it, when the hammer fell. Two pieces of the rock when struck together caused sparks to fly from the contact. A piece of the rock held against a steel flint mill produced a shower of sparks.

According to the statement of miners engaged in drawing pillars in the Bellevue mine, when a cave occurred the glow of the sparks from the falling rock would light up the place and make the timbers visible, the miners' lights having been extinguished by the rush of air from the fall. These facts and the experiences of the men who worked in the mine leave not the shadow of a doubt regarding the source of the ignition of the gas.

Safety when working under such conditions must depend on the thorough ventilation of the working places to keep them free from accumulations of gas, and the adoption of a method of working that will reduce to a minimum the liability of heavy falls of roof. The report on this explosion, as made by Mine Inspector, John T. Sterling and Professor John Cadman, of the University of Birmingham, England, is found in the Transactions of the Institute of Mining Engineers, Vol. 44, p. 740.

Examination Questions Answered

Miscellaneous Questions

(Answered by Request)

QUESTION—*In a mine where 50,000 cu.ft. of air per min. is furnished, in which 3 per cent of gas was detected, what was the total flow of gas per minute?*

ANSWER—Assuming that the given volume (50,000 cu.ft. per min.) is measured on the return airway and includes both air and gas, as the question seems to imply, the gas forming 3 per cent of this volume, the quantity of gas generated is $0.03 \times 50{,}000 = 1{,}500$ cu.ft. per min.

QUESTION—*A counter-gangway is 1,680 ft. long, on a pitch of 10 deg.; what will be the horizontal distance measured on the mine map?*

ANSWER—The corresponding horizontal length of the gangway is $1{,}680 \times \cos 10 \text{ deg.} = 1{,}680 \times 0.9848 = 1{,}654.46$ ft. Since the law requires (Art. 3, Sec. 1) that the mine map be drawn to a scale of 100 ft. to the inch, the measurement on the map would be 16.54 in.

QUESTION—*What is a regulator as applied to mine ventilation?*

ANSWER—In mine ventilation, a regulator is any means employed to divide the air current proportionately between two or more splits. The most common form of regulator is a brattice or partition erected in the airway and having an opening the size of which can be adjusted by a movable shutter to meet the desired requirements. This form is known as the box regulator and is located on the back entry near the end of the split where it will not obstruct haulage operations. Another form is a door regulator in which a door is erected at the entrance of a split and swung to one side or the other of the passageway so as to control the quantity of air entering the split in any desired proportion. These two forms of regulators are shown in the accompanying figure.

TWO FORMS OF MINE REGULATORS

QUESTION—*If the horsepower of a fan is 40 and the water gage 1.75 in.; what quantity of air would you expect to obtain, supposing the useful effect of the fan to be 50 per cent?*

ANSWER—If the fan develops 40 hp. having an efficiency of 50 per cent, the power on the air is $0.50(40 \times 33{,}000) = 660{,}000$ ft.-lb. per min. Then, since a water gage of 1.75 in. corresponds to a pressure of $1.75 \times 5.2 = 9.1$ lb. per sq.ft., the quantity of air produced by this fan is $660{,}000 \div 9.1 = 72{,}527$ cu.ft. per min.

QUESTION—*What horsepower will give a current of 60,000 cu.ft. per min., in a mine having four splits, each split being 6 x 8 ft., in section, and 5,000 ft. long?*

ANSWER—The quantity of air passing in each split is $60{,}000 \div 4 = 15{,}000$ cu.ft. per min. The rubbing surface in each split is $2(6 + 8)5{,}000 = 140{,}000$ sq.ft., and the sectional area $6 \times 8 = 48$ sq.ft. The pressure required to pass 15,000 cu.ft. per min. in each split is,

$$p = \frac{0.00000002 \times 140{,}000 \times 15{,}000^2}{48^3} = 5.7 \text{ lb. per sq.ft.}$$

The horsepower then required to circulate a total of 60,000 cu.ft. of air per min., in four splits against this pressure is,

$$H = (60{,}000 \times 5.7) \div 33{,}000 = 10.36 \text{ hp.}$$

QUESTION—*What quantity of air would be required for the following organization: Coal loaders, 310; motormen, 22; trackmen, 8; general foreman, 1; assistant foremen, 6; pumpers, 4; electricians, 3; company men, 75? Show the solution.*

ANSWER—The Alabama Mining Law (Sec. 40) requires the circulation of 100 cu.ft. of air per minute. for each person employed in the mines, and 500 cu.ft. per min., for each mule. In this case, there is a total of 429 persons, and it may be assumed that the coal is all gathered and hauled by motors and no mules are employed underground. In the absence of any special conditions regarding gas and dust that would require a larger quantity of air, the volume necessary to comply with the mine law is $100 \times 429 = 42{,}900$ cu.ft. per min. A fair estimate would place the circulation required in this mine at, say 45,000 cu.ft. per min.

QUESTION—*What kind of a system of shotfiring would you recommend, in a gaseous mine where electric cap lamps are used?*

ANSWER—Shotfiring, in such a mine, should be performed by competent shotfirers appointed for that purpose, the work to be done after all the men have left the mine except the shotfirers. The safest plan is to have all holes drilled by the miners examined, charged and fired by the shotfirers, using permissible powders, and examining every place for gas before firing a shot therein. No miner should be permitted to fire a shot or have in his possession materials for that purpose.

Testimony Completed in Assigned-Car Rehearing; Oral Argument Set for Dec. 17-19

Virginian Official Stresses Need of New Coal Branch—Demurrage Ruling Issued—Carriers Reject Plea to Cut Wheat Rates—Anthracite Rate Hearings On in East

After ten days devoted to the taking of testimony, the Interstate Commerce Commission on Nov. 1 closed its rehearing of the assigned car case. The dates for oral argument have been set for Dec. 17, 18 and 19. Briefs are to be filed by Dec. 1.

A rumor is in circulation that the effective date of the order is to be deferred until April 1. So far as can be learned, there is no basis for such a report. It is evident, however, that there will be some delay, since Commissioner Aitchison announces that he must undergo a surgical operation which he expects will keep him away from his desk for three weeks.

It had been taken for granted until recently that the private-car interests would carry the case to the U. S. Supreme Court, were the ultimate finding in the case not to their liking. Grave doubt now is expressed as to whether or not this question is justiciable. As the question involved appears to be one of regulation, only, some are of the opinion that it is not a matter which the federal courts will entertain.

Much Opposition to Assigned Cars

Almost the whole of the last day of the hearing was taken up by witnesses opposed to assigned cars of all classes. Among those who testified in opposition to assigned cars, filing exhibits intended to show that discrimination was shown as between mines loading assigned cars and those loading unassigned cars, were Charles O'Neill, secretary of the Central Pennsylvania Coal Producers Association; C. D. Boyd, traffic manager of the Hazard and Harlan Coal Associations; W. L. Hammond, vice-president, White Star Mining Co.; John Marland, general superintendent of the King Harlan Coal Co.; H. B. Tyree, fuel agent, Detroit Edison Co.; W. D. Ord, president, Empire Coal & Coke Co.; T. F. Farrell, vice-president, Pocahontas Fuel Co.; A. R. Yarborough, traffic manager, Kanawha Coal Operators Association, and S. C. Higgins, secretary, New River Coal Operators Association. Mr. Hammond's company is a subsidiary of the Detroit Gas Co. and Mr. Marland's company a subsidiary of the Detroit Edison Co. W. D. McKinney, secretary of the Southern Ohio Coal Exchange, had offered exhibits and testimony along the same lines Oct. 30.

John D. Battle, traffic manager of the National Coal Association, testified briefly on behalf of the association in connection with the railroad-fuel assigned car, confining his remarks to the present railway situation as reflected in the progress reports released by the American Railway Association, and a number of tables were filed with the Commission indicating that for several years past non-coal producing roads either do not own a sufficient number of cars to protect the tonnage that actually moves on their rails, or coal cars moving to the rails of non-producing roads are not returned promptly. Figures were filed showing the large number of cars on line compared with ownership.

Charles M. Schwab, chairman of the board, Bethlehem Steel Corporation, stated that his companies resorted to the purchase of privately owned coal cars only after all of the methods had failed to get a regular and suitable supply of coal. James A. Campbell, president of the Youngstown Sheet & Tube Co., followed Mr. Schwab with practically the same kind of testimony. Both agreed that private cars, as an investment, is not a good one but that they are necessary in order to operate their plants successfully. Robert Hobson, president of the Steel Co. of Canada, and Harry Colby, a member of the firm of Pickands-Mather Co., testified along the same lines as did Messrs. Schwab and Campbell. L. H. Bihler, on behalf of the United States Steel Corporation and its subsidiary companies, testified to the effect that without the use of private cars they had experienced great difficulty in getting their fuel.

A witness for the Pittsburgh Plate Glass Co. said that he did not desire any preferential movement or service from the carriers during a shortage of transportation facilities other than cars. Edward J. Berwind, testifying on behalf of the Berwind-White Coal Co., made the same declaration and put considerable evidence in the record as to the displacement of coal by fuel oil in the East, stating that his company alone, this year, estimates its loss at 1,200,000 tons of coal to fuel-oil competition. Many witnesses testified that they had not been able, in the past, to get a suitable supply of coal regularly until they acquired their own cars.

One of the strong witnesses of the concluding sessions of the rehearing was Van A. Bittner, who appeared as the personal representative of John L. Lewis, president of the United Mine Workers. Mr. Bittner told the Commission that the United Mine Workers is squarely opposed to assigned cars. "While assigned cars secure an ideal condition for a small minority of coal miners at particular mines," said Mr. Bittner in the course of his testimony, "it creates an altogether different condition at the majority of mines where the majority of the men work." Evidence had been submitted previously to show that the labor turnover was much greater at comparable mines when one was served with assigned cars.

Mr. Bittner laid at the door of the assigned car no small measure of the responsibility for the overexpansion of coal mining. If the practice is abolished, he predicted that only a short time will be required to drive out of business the uneconomical mine. If only the more efficient mines live, it will do much toward stabilizing the industry, he said.

A new point was made by one witness who contended that coal for household consumption should have first call on cars if the practice is to be continued. A spokesman for the Associated Industries of Massachusetts urged that nothing be done which would interfere with the right of the railroads to use their own cars as they see fit and that nothing be done to add to the price which the railroads will have to pay for their fuel. Abner Kunsford, operating the mines of the Fordson Coal Co., in eastern Kentucky, admitted that it doubled the cost of production when assigned cars are not available.

Hix Says Virginian Ry. Will Dry Up Unless It Can Build New Coal Branch

Testifying before Director Mehaffie, of the Bureau of Finance of the Interstate Commerce Commission, at Washington, Oct. 31, C. H. Hix, vice-president of the Virginian Ry., said that unless the road was permitted to develop fully its resources in the bituminous coal fields it would dry up for lack of business.

The hearing was on the Virginian's and Pocahontas Fuel Co.'s petitions for reconsideration by the commission of the order denying the Virginian authority to extend its lines a little more than one mile in Wyoming County, W. Va., to coal fields owned by the Pocahontas Fuel Co. The commission held the Virginian had not been able to furnish the number of cars ordered by the coal mines already opened and dependent on it in whole or in part for car supply.

This conclusion reached by the commission was emphatically denied by Vice-President Hix, who asserted that, with

the exception of the period from July, 1922, to June, 1923, inclusive, when abnormal conditions existed on account of the strikes of bituminous-coal miners and railway shopmen, the Virginian had adequately met the demands on it for service and at various times and for considerable periods had had a surplus of empty coal cars.

Declaring the company in 1922 had over 8,000 coal cars, Mr. Hix said, in April this year 1,500 additional cars were ordered, 1,000 of which will be of 120 tons capacity and 500 of 70 tons capacity. He said the company had 123 freight locomotives in 1922, and had acquired this year fifteen heavy mallet locomotives.

The Virginian has increased its coal handling facilities at Sewalls Point at a cost of $3,250,000 and has contracted for the electrification of 134 miles of its line at a cost of $13,000,000, Mr. Hix said. These improvements will greatly increase the company's facilities for handling increased coal shipments, the witness said.

Railroads Refuse to Reduce Wheat Rates: No Decision on Coal Tariffs

The Committee of Railroad Executives appointed at the conference in New York on Oct. 30, consisting of Samuel Rea, president of the Pennsylvania; Howard Elliott, chairman of the Northern Pacific; J. E. Gorman, president of the Rock Island; W. H. Finley, president of the Chicago & Northwestern, and H. E. Byram, president of the Chicago, Milwaukee & St. Paul, notified the Interstate Commerce Commission Nov. 1 that they declined to accede to the request of President Coolidge that the carriers voluntarily reduce rates on wheat for export.

Nothing was given out about coal rates, but it was unofficially said the roads are adverse to changing the differential between export and domestic coal rates.

The American Farm Bureau Federation takes exception to the decision of the railroad men, and insists that the Commerce Commission cut wheat rates. The American Mining Congress has filed with the Commission a request that if wheat rates are to be examined, rates on all basic commodities be included in the study.

Retail Coal Prices Unaffected by Freight Rates, Vermont Dealers Testify

The people of Massachusetts want no charity, but they want absolute assurance that the factors entering into the final cost of coal are equitably assessed, including the railroad rate, said Representative Henry L. Shattuck, of the Massachusetts Coal Commission, testifying Nov. 2 at Boston before Chief Examiner Butler, of the Interstate Commerce Commission, who is investigating rates on anthracite on Eastern railroads.

Eugene Hultman, Fuel Administrator, suggested that the rate from the mine to tidewater might be lowered and that a large proportion of the coal coming to eastern Massachusetts might be brought by water, 32 per cent being so transported at the present time. He called attention to the disparity in rates, saying the rate to Montreal, a distance of 405 miles, is $4.96 per gross ton on the Delaware & Hudson, the largest coal carrier to New England, while the rate to Lawrence, Mass., 378 miles, is $5.04.

H. A. Taylor, counsel for the Eastern group of roads, urged that the roads should not be asked to stand any reduction on coal rates, saying that since key rates were established by the commission in 1916 the net increase in coal rates to Boston has been only 5.7 per cent, while on other commodities the increase has been 81 per cent. Meanwhile, he said, freight operating expenses of the Eastern rate group have increased 117 per cent per 1,000 net ton miles from 1916 to 1922.

Taxes have increased since 1916 more than 89 per cent and wages have gone up per man 118 per cent since 1915, exclusive of increases due to punitive overtime rates of pay, said Mr. Taylor. Many materials have increased in the same period over 100 per cent.

Representatives of the New Haven and the Boston & Maine supported Mr. Taylor's contention.

The 10-per cent freight-rate reduction on anthracite of July, 1922, had no effect on the retail price, according to the testimony of every retail dealer but one called as witnesses at the inquiry held at Montpelier, Vt., Oct. 31, by the Interstate Commerce Commission. H. M. Odell, of Montpelier, Vt., said that his company had given the public the benefit of the reduction. F. L. Platka, of Burlington, stated that his company, the E. S. Adsit Coal Co., received only $4.31 per ton for its anthracite after deducting from the retail price of $16.50 the cost of the coal at the mine and the freight charges.

Former State Fuel Administrator H. J. M. Jones declared that the root of the evil in the coal situation lay in the prices charged by independent operators, which ranged from $18 to $20 per ton as against $15 charged by the "old line" producers.

Hearings were to be held in Albany, N. Y., Nov. 5 and 6; Rochester, Nov. 7, and in New York City, Nov. 9.

I. C. C. Examiner Rules on Demurrage

Reporting in the case of the Tidewater Coal Exchange vs. the Baltimore & Ohio R.R., Interstate Commerce Commission Examiner Butler rules that:

Demurrage assessed against complainants during eighteen months under the average plan and monthly settlements made without objection or request for any other plan for assessing demurrage where many thousands of cars were handled on a basis of five days per car free time, are not entitled to have demurrage charges reassessed under straight demurrage, because no average demurrage agreement was signed by them. Demurrage charges on cars at tidewater detained loaded with bituminous coal is unreasonable to the extent that the cars were not unloaded in the order of their arrival or substitution of time of detention allowed on accruals during the monthly periods for settlement. Reparation awarded.

Where a demurrage tariff provides that cars shall be released from demurrage at the time the vessel registers for the cargo, of which the coal dumped into the vessel is a part, the shipper is not entitled to have cars released from demurrage at the time the vessel registers unless he is in a position to accept delivery of the coal.

Under the tidewater coal demurrage tariffs, which provide for an average of five days per car free time, shippers are entitled to have excess credits for free time accumulated during a calendar month applied to the cancellation of debits for demurrage accruing during the same month on cars that remained unreleased at the end of such month.

Southern Illinois Men Talk of Shipping Coal by Water

A few of the coal operators in southern Illinois are working hard for water transportation of coal out of Franklin County to the Mississippi by way of the Big Muddy River. They made their appearance again during the late October hearings held in the Middle West by the Senate committee that is gathering information on the Great Lakes-to-the-Gulf project covered in the McCormick 9-ft. channel bill now before Congress. Joseph Leiter, lessor of the Zeigler coal properties operated by Bell & Zoller, is a leader in the Big Muddy movement.

He and State Senator Sneed, of Herrin, and various citizens of Franklin County said it would cost $4,280,000 to dredge the Big Muddy and build docks to handle several million tons of southern Illinois coal output to the Mississippi. The Big Muddy project is not now included in the McCormick bill for the Great Lakes-to-the Gulf development. They argued that the expenditure is justified as a freight-rate reducing measure and because the country's future need for coal demands a better outlet from southern Illinois than merely railroads.

C. F. Richardson, of Sturgis, Ky., head of the West Kentucky Coal Co., said that coal from his region can be shipped to Chicago by water cheaper than by rail, and he spoke after long experience in barging coal on the Ohio and Mississippi.

Strikes Menace Hard-Coal Output

Succession of Walkouts Emanate from Trivial Grievances—Hudson Trouble Scarcely Settled When 10,000 Pennsylvania Coal Co. Miners Quit.

The strike menace in the anthracite field is looming as the hard-coal operator's greatest problem in the effort to bring production to higher levels. This has been especially true since the signing of the new wage agreement and is causing no little consternation among anthracite producers. In a recent statement the Anthracite Operators General Committee declared that twenty strikes, involving 30,000 men, had occurred in the anthracite mines since the 10-per cent wage increase settlement through Governor Pinchot, and a loss of 125,000 tons in production had been the result. This statement covered a period of but one month. Since that time about a dozen more strikes have taken place.

In most cases the strikes originate from trifling grievances concerning one or two of the workers. A colliery is laid idle due to hasty action of the grievance committee and the committee's apparent belief that a strike is the remedy for all ills. The coal companies are solid in their policy to discuss no grievances while the men are idle, and after a few days of idleness the workers usually return to their posts. In the meantime thousands of tons of anthracite are lost to the market and thousands of dollars in wages are lost to the men.

Grievance Committees Disregard Union Officials

An instance of the manner in which the general grievance committees dominate the workers and utterly disregard the wishes or apparent wishes of the officials of the United Mine Workers was made plain in the recent general strike of Hudson Coal Co. mine workers in Lackawanna and Luzerne counties. At a meeting of the general grievance committee several local union representatives of the Hudson collieries reported grievances. At the meeting officials of the district union requested the committee to have the grievances taken up through the regular channels and if necessary have the board of conciliation pass upon their merits. This was agreed to after some argument. A week later, however, with no district union officials present, the grievance committee met again and declared a general strike effective at once. Eighteen of the Hudson company's twenty-two collieries were thrown idle. The strike continued for three days.

After it had become plain that the company officials would not negotiate while the operations were idle, the committee called a meeting and declared the strike at an end. The strike was a costly one to the anthracite market and to the miners. Over 60,000 tons of coal was left unmined and the pay envelopes of the workers were short by thousands of dollars.

At the end of the short period of two weeks following the conclusion of the Hudson general strike, the general grievance committee of the Pennsylvania Coal Co. unions in the Pittston field met and declared a similar unsanctioned general strike. In answer to the strike call about 10,000 miners left work Thursday, Nov. 1, and nine operations were made idle.

At a meeting lasting six hours the grievance committee of the Pennsylvania Coal Co. voted Nov. 2 to call off the strike and send the men back to work Monday, Nov. 5. President Cappellini addressed the meeting, urging the men to return to the mines and scoring men who worked only a few hours a day.

In the latest general walkout evidence of a new angle was presented in the conflict within the ranks of the mine workers, and to those familiar with the situation the impression is that the strike was called more in defiance of the present union officials of District 1 than for a settlement of grievances. The coal company and the consuming public were the "goats." It is true, however, that many grievances have been reported by the general grievance committee and action in their settlement has been slow.

The apparent split within the ranks of the miners' union was occasioned by the action of Rinaldo Cappellini, president of District 1, in overlooking the Pennsylvania Coal Co. union leaders when recommending the appointment of four new organizers for the district. It was the Pennsylvania company men who placed Cappellini in the field for president this year. He was supported heartily throughout the Pittston region and received his majority from that section of the district.

When the meeting of the general grievance committee of the Pennsylvania unions was called to consider grievances and threats of a strike were heard, Cappellini appointed his vice-president, George Isaacs, to attend the meeting and express the views of the district officials on the general strike question. Isaacs attended the session and voiced the opposition of the district officials to general and unsanctioned strikes. He was not received very warmly and his advice was ignored.

The labor situation in the anthracite field has assumed a volcanic aspect. Strike eruptions have been frequent. Hardly a week goes by without three or four petty strikes breaking out, existing for a few days and subsiding. In every case the walkouts are not sanctioned by the district union officials, but nevertheless they have their effect on the coal market, the comfort of the consumers and the miners' pocketbooks.

Wadleigh Resigns as Coal Division Chief

Francis R. Wadleigh, Chief of the Coal Division of the Bureau of Foreign and Domestic Commerce and former Federal Fuel Distributor, tendered his resignation to Secretary Hoover Nov. 2 on account of "the necessity of returning to private commercial life." He will associate himself with the C. E. Tuttle interests.

Mr. Wadleigh's retirement from the commercial intelligence service of the government is another instance of the unfortunate effects of salary limitations and other restrictions in a field of government activity which is feeling most directly the competition of the business world in its demand for the services of high-grade commercial experts, according to Director Klein of the Bureau of Foreign and Domestic Commerce.

Mr. Wadleigh was appointed head of the Coal Section of the Bureau of Foreign and Domestic Commerce in October, 1921. During the coal miners' strike in 1922 he acted as assistant to Secretary Hoover on all matters pertaining to coal and was a member unofficially of the President's Coal Committee. In September, 1922, Mr. Wadleigh was appointed assistant to the newly created Federal Fuel Distributor, C. E. Spens, and on the latter's resignation, Jan. 1, 1923, was appointed Federal Fuel Distributor. Upon expiration of this office by limitation of law, September, 1923, Mr. Wadleigh resumed duties as chief of the Coal Division of the Bureau of Foreign and Domestic Commerce.

Dr. Klein and other officials of the Bureau of Foreign and Domestic Commerce expressed the highest appreciation of Mr. Wadleigh's work as chief of the Coal Division and stated that "the resignation was accepted with keen regret."

Dr. Edward T. Devine has written to *Coal Age* calling attention to an error in an editorial published in the issue of Oct. 4, page 504, on "What Do Miners Earn?" The statement was made that "to a subcommittee, Commissioners Neill and Devine, were assigned the studies of labor, including that of earnings." Dr. Devine calls attention to the fact that it was Judge Alschuler who was appointed to this subcommittee with Dr. Neill. It was so reported in *Coal Age* of Nov. 30, 1922, page 887, and the reference in the issue of Oct. 4, is an error. Dr. Devine adds "You misstate the facts again when you say that the only credit that attaches to the Commission is for selecting highly competent people to do the work, a purely technical and highly complicated job. I share your high estimate of the credit which should be given to the statistical experts who made the study of earnings; but Miss Bezanson and her associates would tell you that Commissioner Neill deserves personal credit for a very active part in planning and carrying through this technical and complicated job."

Need of Dictator in Coal Industry Again Emphasized

Pittsburgh Coal Producers Association Resigns from National—Move May Prove Significant When Congress Takes Up Coal Legislation

By Paul Wooton
Washington Correspondent of *Coal Age*

That the coal industry needs a dictator has been emphasized again by the action of the Pittsburgh Coal Producers' Association in tendering its resignation from the National Coal Association. Incidentally the resignation has not been acted upon. The difficulty may be ironed out. At any rate the National's revenues will not be affected, since practically all of the companies making up the Pittsburgh Association are taking out individual memberships in the National. Nevertheless, the incident is regarded here as one of much significance. The legislation which will be enacted at this session of Congress will depend to a great extent on the conduct of the coal industry during the period between the issuance of the reports of the Harding Coal Commission and the time when coal legislation will be brought on to the floor of the Senate or the House of Representatives.

If those who favor federal regulation of the industry can point to the fact that the industry is even incapable of maintaining a representative national association, they would have evidence to substantiate their contention that there is not enough unity among the producers to make probable any constructive accomplishments within the industry to make it function better.

Coal Industry's Chance to Shape Its Future

On the other hand, were the producers in a position to go before a committee of Congress and point to the fact that they had selected a highly qualified man from among their number to act as the industry's premier, and that he had been given broad powers and was possessed of those requisites of personality and prestige to insure united action along constructive lines, the unquestioned reaction on the part of a majority of the legislators would be to give the industry a chance to work out the program which it had launched.

Such a leader might have been able to persuade the operators in Somerset County and the Connellsville district that it was not the constructive thing to cut wages to the extent they did, at just that time at least. He might have been able to obtain a pledge from the non-union operators that they would make only a proportionate cut were the union operators successful in getting a small reduction. It is entirely possible that a man of personality and of force could have saved that strike situation, thereby preventing its costly aftermath and a nationwide demand for regulation.

Even had the industry's premier failed in his efforts to prevent the strike, he could have taken a desk in Secretary Hoover's office and rendered great assistance in voluntary price control. When the operators in western Kentucky refused to agree, he could have jumped on the train and pointed out to them, face to face, that they were insisting on a course which would do much to fasten permanent regulation on the coal industry. On the other hand, he could have convinced Mr. Hoover, no doubt, that the Kanawha operators should have been allowed to have a higher price, in view of their special difficulties in keeping their mines in operation.

The unremunerative character of many coal operations is shown by the statistics just compiled by the Bureau of Internal Revenue covering income tax returns during 1921. Out of 3,656 corporations engaged in the mining of coal, 2,577 had no net income whatever and suffered deficits aggregating $72,521,815. Of the total, 1,079 corporations had a net income of $82,654,787 and paid a total tax of $15,219,444. Of that amount, $6,922,882 was income tax and $8,296,562 was war profits or excess profits tax.

Parker Protests That Trade Commission's Anthracite Reports Are Misleading

The Federal Trade Commission's reports on the anthracite industry are misleading the public, according to E. W. Parker, director of the Anthracite Bureau of Information, Philadelphia, who wrote the following letter of protest to Victor Murdock, chairman of the Commission, Oct. 31:

"On behalf of the anthracite industry as a whole I must earnestly protest against the manner in which the series of reports on anthracite now being issued by the Federal Trade Commission are prepared. Instead of indicating the exact quantities of anthracite, expressed either in cars or tons, which have passed through the hands of one or more wholesale dealers, the information is expressed in percentages, without any reference whatsoever to the relationships such percentages bear to the total production of anthracite.

"It is well known in the industry that the total quantity of anthracite which is sold through wholesalers or jobbers is relatively small. The manner in which the facts are given to the public through the Commission's report is entirely misleading. I am inclosing herewith an editorial taken from the *Evening Bulletin* of Philadelphia, which shows that according to its interpretation of the commission's report, no less than 93.8 per cent of the total production of anthracite passed through the hands of these wholesalers. Expressed in percentages the reports may be based on insignificantly small quantities. They certainly do not apply to the 70,000,000 tons of anthracite production.

"The same objection applies to the portion of your report under the subhead 'High Prices Charged by Mine Operators.' The statement shows that one-third of the tonnage was sold at more than $12 a ton, but does not indicate what quantity these sales represented nor their relationship to the total anthracite output.

"It is not then, I trust, presuming too much to request of the Federal Trade Commission that in the future reports of this series the quantities of anthracite passing through the hands of wholesalers shall be definitely stated."

Navy Receives 11 Bids for Storage Coal

At the Bureau of Supplies and Accounts, Navy Department, bids were opened Nov. 1 for furnishing 25,000 tons of steaming coal for delivery into storage at the Naval Fuel Depot, Sewalls Point, Va. The proposals received were as follows, all being f.o.b. Sewalls Point, except where otherwise specified:

C. G. Blake & Co., Cincinnati, $5.02 per ton; W. H. Brown Coal Co., Inc., Norfolk, $4.42 per ton; Castner, Curran & Bullitt, Inc., New York, $5.32 per ton; Eastern Coal & Export Corporation, Richmond, $4.75 and $5 per ton; Fayette Smokeless Fuel Co., Mt. Hope, W. Va., $4.87 per ton; Lake & Export Coal Corporation, Huntington, W. Va., $2.17 per ton, f.o.b. mine; Leckie Coal Co., Inc., Columbus, Ohio, $5.75 per ton; Low Volatile Consolidated Coal Co., Beckley, W. Va., $5.32 per ton; Raleigh Smokeless Fuel Co., Beckley, W. Va., $5.34 per ton; Smokeless Fuel Co., Charleston, W. Va., $5.52 per ton. An informal bid was received from the Steamship Fuel Corporation, New York.

Hearings by the Federal Trade Commission into pyramiding of anthracite prices, which will begin in Washington, D. C., Nov. 19, will be conducted by the full commission. The hearing is expected to last about a week. Conduct of the inquiry by the whole commission is unusual, as heretofore cases heard by the Commission have as a rule been handled by one or two commissioners and an examiner.

Cessation in Hearings of Appeals On Anthracite Tax Valuations

301 Actions Involving Many Millions Enlist Legal Lights—Commissioners' "Expert" Kites Values—Numerous Assessments Reduced

After four weeks of taking testimony, the Schuylkill County courts have temporarily discontinued hearings in the appeals of anthracite land owners from the triennial assessment of 1922, the regular civil and criminal terms being due now. These tax cases, comprising 301 separate actions on the court calendar and involving originally the services of more than 30 lawyers from New York, Philadelphia, Scranton, Wilkes-Barre, Reading and Pottsville, are the most important in the history of the anthracite industry.

The issue is this: In 1921 Schuylkill coal lands were assessed for tax purposes at approximately $63,000,000. In the 1922 triennial assessment the County Commissioners increased this to approximately $422,000,000. This figure, they said, was only 60 per cent of the market value of the lands, so that the actual market value, according to the County Commissioners, was $703,000,000. The minority Commissioner, Peter J. Cuff, took the stand and swore that he thought the true market value was $1,000,000,000 and that he had endeavored to have that figure adopted.

Coal-land owners have maintained that these values were inflated and unjust. They proved, by thousands of instances taken from the public records, that other private properties sold in 1921 had been valued in 1922 at as little at 2.2 per cent of sale price and that the average 1922 valuation of all properties other than coal sold in 1921 was less than one-third. The County Commissioners agreed that they would make their valuation only 45 per cent of market value instead of 60 per cent. This meant that even if the supposed market value of $703,000,000 were retained, the taxable valuation would be a little over $316,000,000 instead of $422,000,000. The cases thereupon went to court upon the issue of determining the actual market value of each tract in the county, to which value, when established by the courts, the ratio of 45 per cent would apply.

Simple Procedure of an "Expert"

The methods used by the County Commissioners, as testified to in Court, were: County Engineer S. G. Crawford was assisted by one W. C. Monroe, from Scranton, as an "expert." Mr. Monroe has made a business of posing as "expert engineer" for County Commissioners wishing to kite coal-land values, and he has been known to take jobs on a sliding scale basis—a percentage on the final increase in valuation. He had such a contract in Northumberland County last year, and the court there threw it out with considerable tart comment.

Monroe and Crawford took the Geological Survey maps and sections, and from these calculated coal areas and bed thicknesses. It was simple multiplication to get cubic contents on tonnage theoretically in place. In most instances they used 15c. a ton as the value of recoverable coal. Dividing the amount so obtained by the number of acres in the areas under discussion, they arrived at an average value per acre.

As matters now stand, the appeals which are being heard are those of the Philadelphia & Reading Coal & Iron Co. and affiliated interests, comprising 45 separate cases, and 18 of the Lehigh Coal & Navigation Co. and its affiliated concerns.

The procedure in each instance is much the same. The county formally proves assessment and then introduces its "experts," Monroe and Crawford, to sketch the procedure of valuation. The appellants then bring on their witnesses to prove actual market values. In the Reading appeals from the Blythe Township valuations, for example, the actual market value per acre was said by the county to be $6,132. The Reading offered as witnesses Chief Engineer John F. Bevan, Assistant Engineer W. A. Richards, Division Superintendent Fred C. Caldwell, of Shamokin; W. S. Pugh, former city engineer of Pottsville; George Stevenson, of Stevenson & Knight, Scranton; Arthur W. Sheafer, consulting engineer, of Pottsville, and several of the Reading's own division engineers.

These men, after careful analysis of each tract in Blythe Township, placed valuations not to exceed $1,500 on the best lands and almost nominal sums on lands in the Sharp Mountain basin or under surface set aside for watershed purposes. In every instance these men knew of sales, public and private, of comparable lands, which sales they took into consideration, as the Pennsylvania law directs.

Every man told of the impossibility of calculating the amount of coal in place in a virgin tract. Mr. Bevan showed that it was impossible to determine the amount in a developed tract. He said that any might pinch out unexpectedly, and frequently did, so that within a short space there might be 10 ft. of coal in a gangway and then a thickness of only a few inches. He analyzed the veins in the Blythe Township lands as shown by engineers' maps of the Eagle Hill and Silver Creek collieries. Every vein is there from the Little Diamond down to the Lykens Valley—eleven in all, counting the three splits of the Mammoth as separate.

He testified that the Buck Mountain and Lykens Valley beds there are unworkable. Of the remaining nine, two—the Diamond and the Skidmore—pinch out at places, while the Orchard at one place pinches down to 6 in. of coal.

Says Estimates of Tonnage in Place Is Guesswork

The total thicknesses of the nine workable beds, so far as developed, vary from 30 ft. 6 in. to 93 ft., but the actual coal content in these beds varies from a total of 17 ft. to 59 ft. Mr. Bevan said that in the Schuylkill field nobody could tell what was a hundred yards, or even a hundred feet, ahead, and that any estimate of tonnage was nothing but guesswork.

In the same way he testified that it was impossible to fix any percentage of coal in place as recoverable, since nobody could tell what the character of the top rock would be, whether the coal would be crushed, or whether the coal would be friable. The only certain thing, he said, was that the deeper the workings went the less coal was recovered, owing to the overhanging weight which crushed pillars and even unmined coal.

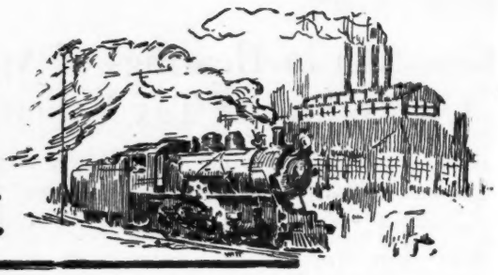
Monroe admitted that he had placed an average valuation of $6,132 on every acre of land in Blythe Township held by the Reading, and also admitted that they lay in three basins—northern, middle and Sharp Mountain. He admitted that the middle basin was much more valuable than either of the others, but that he had placed a flat valuation on each. He said he had never seen the veins on the property and had never been in the mines there. He also said that he considered that 50 per cent of the original coal content was recoverable, but could give nothing but his "experience" as basis for that estimate.

He said the Reading lands in Blythe were worth, in the market, $32,507,165. He then said that the total recoverable coal in the lands was 171,813,692 tons, worth 15c. a ton in place. He was told to multiply that out, and seemed nonplussed to find that the total was only $25,112,053, or more than $6,000,000 less than his total valuation. He knew nothing of any tract and could not tell what veins specified tracts contained, yet he valued them at $6,132 per acre just the same.

That the County Commissioners themselves take little stock in their handiwork seems apparent from the peculiar developments since these cases began on Oct. 8. To begin with they lopped off more than $100,000,000 by the agreement on a 45-per cent ratio. Then the compromisers began to get busy, assisted by one of the judges. The Hudson Coal Co., which was assessed at $1,739,000 in 1921 and at $15,970,836 in 1922, settled on a new assessment of approximately $3,750,000.

The Girard Estate then fell into line. Assessed at $4,712,279 in 1921 and at $24,297,110 in 1922, it agreed to a new assessment of approximately $12,000,000. The Lehigh Valley Coal Co., assessed at approximately $5,000,000 in 1921 and approximately $31,000,000 in 1922, settled on a new assessment of about $12,500,000. Others tumbled into line on settlements involving anywhere from 100 to 150 or 160 per cent over the 1921 valuation.

Production and the Market



Weekly Review

Production of bituminous coal is not suffering any decrease as the season advances. The curve of production is a straight line. During the week ended Oct. 27 10,908,000 tons of soft coal was produced, an increase of 214,000 over the previous week. Preliminary estimates for the week ending Nov. 3 indicate no change in the rate of output. The total production at the end of October is practically equal to that of 1917 and 1920 for the same period, but about 30,000,000 tons below the record year, 1918.

Coal Age Index of spot prices of bituminous coal declined one point last week to 183 on Nov. 5, which corresponds with an average price at the mines of $2.21.

The tidewater market is flooded with coal.

Governmen : Bids as Trade Indicators

Bids opened Nov. 1 for 25,000 tons of Navy standard coal, f.o.b. Sewalls Point, resulted in tenders ranging from $1.90 to $3 per gross ton f.o.b. mines.

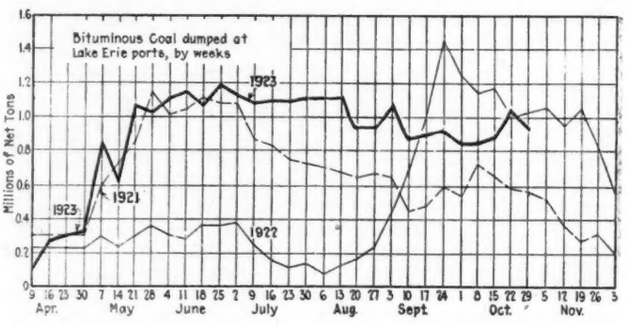
Bids submitted Oct. 31 to the Government Fuel Yards on 14,700 gross tons of smokeless coal for B. & O. delivery, District of Columbia, from Nov. 15, 1923, to March 31, 1924, ranged from $2.03 gross ton at the mine by the Valley Camp Coal Co., Salco Mine, upward to $3.64 as the highest bid by J. B. Haught. The majority of the bids were between $2.20 and $2.60.

Some inquiries for export coal are being received but there is little actual business placed.

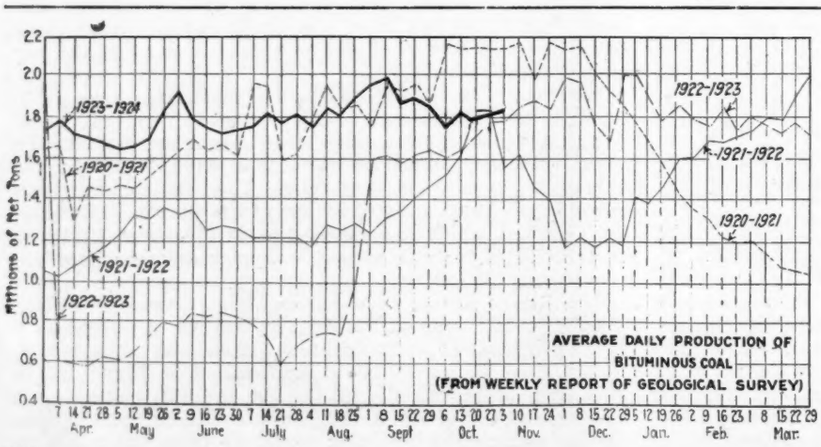
Colder weather slightly improved the domestic-coal market in the Middle West but with no effect on the steam-coal market. There is the usual speculation as to what will happen when the million tons a week now going to the Lakes is thrown on the local markets when navigation closes. The Ohio markets are inactive, prices low and irregular. The Pittsburgh district is saturated with unsold coal and there is no market in New England for spot coal. Dumpings at Hampton Roads during the week ended Nov. 1 amounted to 344,120 net tons, as compared with 259,158 net tons the previous week.

Lake shipments continue close to 1,000,000 net tons weekly, although the season is drawing to a close. Cargo coal shipped during the week ended Oct. 29 amounted to 918,764 net tons.

Although the miners observed Mitchell Day, Oct. 29, by remaining away from the mines and there have been idle days for other operations because of local labor troubles, production of hard coal last week is believed to have been between 1,700,000 and 1,800,000 net tons, or between 269,000 and 369,000 net tons below the output for the week ended Oct. 27, which was 24,000 tons ahead of the output for the previous week. Demand for the larger sizes continue active, but pea coal is easier. Difficulty is found to keep down the accumulations of the steam coals and most dealers find it necessary to make concessions in order to move their tonnages. During the week ended Oct. 29 69,771 net tons of hard coal was shipped up the lakes from Buffalo



	Week Ended Oct. 29	Season to Oct. 29
Cargo	918,764	25,490,681
Fuel	48,785	1,389,754
Totals	967,549	26 880,435



Estimates of Production

(Net Tons)

	1922	1923
BITUMINOUS		
Oct. 13	10,110,000	10,953,000
Oct. 20 (*a*)	10,378,000	10,694,000
Oct. 27 (*b*)	10,683,000	10,908,000
Daily average	1,781,000	1,818,000
Calendar year	311,922,000	456,728,000
Daily av. cal. year	1,224,000	1,796,000
ANTHRACITE		
Oct. 13	2,112,000	2,009,000
Oct. 20	2,039,000	2,045,000
Oct. 27	1,836,000	2,069,000
COKE		
Oct. 20 (*b*)	276,000	286,000
Oct. 27 (*a*)	237,000	276,000
Calendar year	5,591,000	15,659,000

(*a*) Subject to revision. (*b*) Revised from last report.

and Erie, according to the Geological Survey, bringing total shipments for the season to 2,830,590 net tons.

Midwest Coal Moves Better

Slow general improvement of conditions throughout the trade are noted in Chicago and the other Midwest markets. Cooler weather for several days up to the end of last week raised the immediate demand for domestic stuff of various sorts, but of course was not effective enough to start anything resembling a market flurry. No important price advances were possible. Instead, circulars grew a little more firm at the levels operators have been trying in vain to maintain lately. Southern Illinois, for instance, instead of trying to push up the $4.35 lump quotation, settled down to the business of solidifying the bottom at $4.

The steam market has not changed noticeably. Buying is sufficient to absorb the running production and no more. Buyers still are of the opinion that they can do better a month from now, when domestic demand is stronger. Franklin County association producers manage to get $1.40 @$1.50 for practically all their screenings with only occasional drops, though there are lots of cheap screenings to be picked up all around them. Central Illinois sells mainly from $1 to $1.25 with the more anxious operators cutting down to 75c. now and then. Not much Standard district fine coal gets into the Chicago region nowadays, but some has been traded there at 50c.@60c.

Trade continues steady in hard coal, now retailing in Chicago for $17 in the domestic sizes, but there is plenty available for all needs. Pocahontas trade has been light enough to nudge the mine price down from $3 to $2.50 on mine-run without any material effect on demand. Demand is fair and that is all.

St. Louis Trade Remains Dormant

Not enough of last week's cold snap got into St. Louis to have any material effect on the coal market. The whole region around that trading center remained in a carefree state of mind regarding fuel. A little movement of the cheaper grades was noted among retailers but the tonnage was too light to be important. Country domestic trade was idle too. Anthracite, smokeless and coke all are in light demand. In the steam trade wagonload is a little active but carload is slow. A movement of egg and nut

Current Quotations—Spot Prices, Bituminous Coal—Net Tons, F.O.B. Mines

Low-Volatile, Eastern	Market Quoted	Nov. 6 1922	Oct. 22 1923	Oct. 29 1923	Nov. 5 1923†
Smokeless lump	Columbus	$6.75	$6.35	$5.85	$5.75@$6.00
Smokeless mine run	Columbus	6.00	3.05	2.30	2.00@ 2.65
Smokeless screenings	Columbus	5.50	1.35	1.35	1.25@ 1.50
Smokeless lump	Chicago	6.00	6.10	6.10	6.00@ 6.25
Smokeless mine run	Chicago	5.60	2.85	2.85	*2.50*
Smokeless lump	Cincinnati	7.00	5.85	5.85	*5.50@ 6.00*
Smokeless mine run	Cincinnati	6.10	2.50	2.50	*1.75@ 2.50*
Smokeless screenings	Cincinnati	6.25	1.75	1.50	**1.25@ 2.00**
*Smokeless mine run	Boston	6.85	4.55	4.40	4.30@ 4.50
Clearfield mine run	Boston	3.50	1.95	2.00	**1.70@ 2.40**
Cambria mine run	Boston	4.10	2.50	2.55	*2.00@ 3.00*
Somerset mine run	Boston	3.60	2.25	2.25	1.90@ 2.65
Pool 1 (Navy Standard)	New York	4.85	3.05	3.05	*2.75@ 3.25*
Pool 1 (Navy Standard)	Philadelphia		3.15	3.10	*2.95@ 3.20*
Pool 1 (Navy Standard)	Baltimore	4.50			
Pool 9 (Super. Low Vol.)	New York	4.10	2.35	2.30	2.10@ 2.50
Pool 9 (Super. Low Vol.)	Philadelphia	4.30	2.45	2.35	*2.20@ 2.45*
Pool 9 (Super. Low Vol.)	Baltimore	4.00	2.15	2.15	2.15
Pool 10 (H.Gr.Low Vol.)	New York	3.50	2.05	2.05	*1.75@ 2.25*
Pool 10 (H.Gr.Low Vol.)	Philadelphia	3.50	2.00	1.90	*1.75@ 2.00*
Pool 10 (H.Gr.Low Vol.)	Baltimore	3.60	2.10	2.10	2.10
Pool 11 (Low Vol.)	New York	3.00	1.85	1.75	*1.50@ 1.85*
Pool 11 (Low Vol.)	Philadelphia	3.15	1.70	1.60	*1.50@ 1.65*
Pool 11 (Low Vol.)	Baltimore	3.15	1.90	1.90	1.80@ 2.00
High-Volatile, Eastern					
Pool 54-64 (Gas and St.)	New York	3.35	1.60	1.60	1.50@ 1.75
Pool 54-64 (Gas and St.)	Philadelphia	3.50	1.60	1.60	1.50@ 1.75
Pool 54-64 (Gas and St.)	Baltimore	3.35	1.75	1.75	1.75
Pittsburgh sc'd gas	Pittsburgh	4.50	2.55	2.55	2.50@ 2.60
Pittsburgh gas mine run	Pittsburgh		2.25	2.25	2.20@ 2.30
Pittsburgh mine run (St.)	Pittsburgh	3.35	1.85	1.90	1.85@ 2.00
Pittsburgh slack (Gas)	Pittsburgh	3.60	1.20	1.05	1.00@ 1.15
Kanawha lump	Columbus	6.25	3.15	3.15	*2.85@ 3.15*
Kanawha mine run	Columbus	4.50	1.85	1.85	1.75@ 2.00
Kanawha screenings	Columbus	4.10	.90	.90	*.75@ .90*
W. Va. lump	Cincinnati	6.00	3.50	3.35	*2.75@ 3.75*
W. Va. Gas mine run	Cincinnati	4.35	1.60	1.50	*1.25@ 1.75*
W. Va. Steam mine run	Cincinnati	4.00	1.60	1.50	*1.25@ 1.75*
W. Va. screenings	Cincinnati	4.00	1.00	.75	**.50@ 1.25**
Hocking lump	Columbus	5.50	3.05	3.06	*2.85@ 3.10*
Hocking mine run	Columbus	3.60	1.85	1.85	1.75@ 2.00
Hocking screenings	Columbus	3.05	.90	.85	*.75@ .90*
Pitts. No. 8 lump	Cleveland	3.81	2.60	2.55	2.10@ 3.00
Pitts. No. 8 mine run	Cleveland	3.56	1.85	1.85	1.80@ 1.90
Pitts. No. 8 screenings	Cleveland	3.31	1.00	.90	*.80@ .90*

Midwest	Market Quoted	Nov. 6 1922	Oct. 22 1923	Oct. 29 1923	Nov. 5 1923†
Franklin, Ill. lump	Chicago	$5.35	$4.10	$4.10	$3.90@$4.35
Franklin, Ill. mine run	Chicago	4.10	2.60	2.55	2.25@ 3.00
Franklin, Ill. screenings	Chicago	2.60	1.45	1.45	1.40@ 1.50
Central, Ill. lump	Chicago	4.70	3.10	3.10	3.00@ 3.25
Central, Ill. mine run	Chicago	3.10	2.10	2.10	2.00@ 2.25
Central, Ill. screenings	Chicago	1.85	.90	1.05	.90@ 1.20
Ind. 4th Vein lump	Chicago	5.10	3.35	3.35	3.25@ 3.50
Ind. 4th Vein mine run	Chicago	3.85	2.60	2.60	2.50@ 2.75
Ind. 4th Vein screenings	Chicago	2.35	1.20	1.20	1.15@ 1.30
Ind. 5th Vein lump	Chicago	4.75	2.50	2.50	2.25@ 2.75
Ind. 5th Vein mine run	Chicago	3.60	2.10	2.10	2.00@ 2.25
Ind. 5th Vein screenings	Chicago	2.10	.80	.80	.75@ .90
Mt. Olive lump	St. Louis		3.10	3.10	3.00@ 3.25
Mt. Olive mine run	St. Louis		2.25	2.25	2.20@ 2.30
Mt.Olive screenings	St. Louis		1.25	1.25	*1.00*
Standard lump	St. Louis	4.00	3.10	3.05	2.90@ 3.25
Standard mine run	St. Louis	2.60	2.05	2.05	1.80@ 2.30
Standard screenings	St. Louis	1.40	.50	.45	**.50@ .60**
West Ky. lump	Louisville	4.85	2.40	2.40	**2.50@ 2.75**
West Ky. mine run	Louisville	2.50	1.65	1.65	1.50@ 1.85
West Ky. screenings	Louisville	1.85	.50	.50	**.60@ .70**
West Ky. lump	Chicago	4.10	2.60	2.60	2.50@ 2.75
West Ky. mine run	Chicago	3.10	1.75	1.75	1.50@ 2.00
South and Southwest					
Big Seam lump	Birmingham	3.95	3.75	3.75	**3.75@ 4.00**
Big Seam mine run	Birmingham	2.35	1.95	1.95	1.75@ 2.15
Big Seam (washed)	Birmingham	2.60	2.35	2.35	2.25@ 2.50
S. E. Ky. lump	Chicago	5.50	3.00	3.00	2.75@ 3.25
S. E. Ky. mine run	Chicago	4.25	2.25	2.25	2.00@ 2.50
S. E. Ky. lump	Louisville	6.75	3.00	3.00	2.75@ 3.25
S. E. Ky. mine run	Louisville	4.25	1.75	1.75	**1.50@ 2.25**
S. E. Ky. screenings	Louisville	4.25	.80	.75	*.65@ .85*
S. E. Ky. lump	Cincinnati	6.25	3.55	3.35	2.75@ 4.00
S. E. Ky. mine run	Cincinnati	4.00	1.55	1.50	1.25@ 1.75
S. E. Ky. screenings	Cincinnati	3.85	.90	.75	**.50@ 1.25**
Kansas lump	Kansas City	5.75	5.00	5.00	5.00
Kansas mine run	Kansas City	3.75	3.50	3.50	3.50
Kansas screenings	Kansas City	2.50	2.25	2.25	2.25

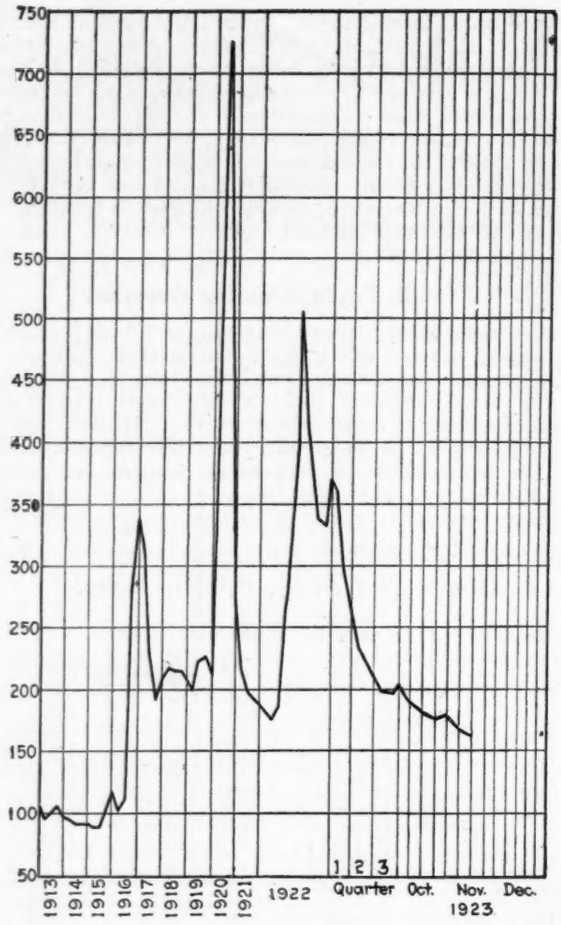
* Gross tons, f.o.b. vessel, Hampton Roads.

† Advances over previous week shown in **heavy type**, declines in *italics*

Current Quotations—Spot Prices, Anthracite—Gross Tons, F.O.B. Mines

	Market Quoted	Freight Rates	Dec. 26, 1922 Independent	Dec. 26, 1922 Company	Oct. 29, 1923 Independent	Oct. 29, 1923 Company	Nov. 5, 1923† Independent	Nov. 5, 1923† Company
Broken	New York	$2.34	$9.00	$7.75@$8.25	$9.60@10.50	$8.00@$9.25	$9.60@10.50	$8.00@$9.25
Broken	Philadelphia	2.39		7.90@ 8.10				
Egg	New York	2.34	9.25@12.00	8.00@ 8.35	9.85@12.25	8.75@ 9.25	9.85@12.25	8.75@ 9.25
Egg	Philadelphia	2.39	9.25@11.00	8.10@ 8.35	9.85@12.20	8.75@ 9.25	9.85@12.20	8.75@ 9.25
Egg	Chicago*	5.06	12.50@13.00	7.20@ 8.25	9.60@12.50	8.00@ 8.35	9.60@12.50	8.00@ 8.35
Stove	New York	2.34	9.25@12.00	8.00@ 8.35	9.85@12.25	8.75@ 9.25	9.85@12.25	8.75@ 9.25
Stove	Philadelphia	2.39	9.25@11.00	8.15@ 8.35	9.85@12.20	8.90@ 9.25	9.85@12.20	8.90@ 9.25
Stove	Chicago*	5.06	12.50@13.00	7.35@ 8.25	9.60@12.50	8.00@ 8.35	9.60@12.50	8.00@ 8.35
Chestnut	New York	2.34	9.25@12.00	8.00@ 8.35	9.85@12.25	8.75@ 9.25	9.85@12.25	8.75@ 9.25
Chestnut	Philadelphia	2.39	9.25@11.00	8.15@ 8.35	9.85@12.20	8.90@ 9.25	9.85@12.20	8.90@ 9.25
Chestnut	Chicago*	5.06	12.50@13.00	7.35@ 8.35	9.60@12.50	8.00@ 8.35	9.60@12.50	8.00@ 8.35
Ranges	New York	2.34		8.25		9.00		9.00
Pea	New York	2.22	7.00@11.00	6.15@ 6.30	6.75@ 8.25	6.15@ 6.65	6.75@ 8.25	6.15@ 6.65
Pea	Philadelphia	2.14	7.00@ 8.00	6.15@ 6.20	6.75@ 9.00	6.35@ 6.60	6.75@ 9.00	6.35@ 6.60
Pea	Chicago*	4.79	7.00@ 8.00	5.49@ 6.03	6.00@ 6.75	5.40@ 6.05	6.00@ 6.75	5.40@ 6.05
Buckwheat No. 1	New York	2.22	4.00@ 5.00	4.00@ 4.10	2.25@ 3.00	3.50	*2.00@ 3.00*	3.50
Buckwheat No. 1	Philadelphia	2.14	5.00	4.00	3.00@ 3.50	3.50	3.00@ 3.50	3.50
Rice	New York	2.22	3.00@ 3.25	2.75@ 3.00	1.75@ 2.15	2.50	*1.50@ 2.15*	2.50
Rice	Philadelphia	2.14	2.50@ 2.75	2.75@ 3.00	2.00@ 2.50	2.50	2.00@ 2.50	2.50
Barley	New York	2.22	1.75@ 2.00	1.50@ 2.00	1.00@ 1.50	1.50	1.00@ 1.50	1.50
Barley	Philadelphia	2.14	1.00@ 1.75	2.00	1.25@ 1.50	1.50	1.25@ 1.50	1.50
Birdseye	New York	2.22		2.10		1.60		1.60

* Net tons, f.o.b. mines. † Advances over previous week shown in **heavy type**, declines in *italics*.



Coal Age Index of Spot Prices Bituminous Coal F.O.B. Mines

	1923			1922
	Nov. 5	Oct. 29	Oct. 22	Nov. 6
Index	183	184	186	344
Weighted average price	$2.21	$2.23	$2.25	$4.16

This diagram shows the relative, not the actual, prices on fourteen coals, representative of nearly 90 per cent of the bituminous output of the United States weighted first with respect to the proportions each of slack, prepared and run-of-mine normally, shipped, and second, with respect to the tonnage of each normally produced. The average thus obtained was compared with the average for the twelve months ended June, 1914, as 100, after the manner adopted in the report on "Prices of Coal and Coke, 1913, 1918," published by the Geological Survey and the War Industries Board.

to Omaha and Chicago removed some of the coal normally traded in St. Louis. Prices are practically unchanged.

In the southern Illinois field working time continues bad with a good many no bills of various sizes on track. This applies even to independents, who cut prices to get business. Railroad tonnage has fallen off. There is no stint of cars in that region. In the DuQuoin and Jackson County field conditions are similar to those in the territory just mentioned. There the mines with lowest prices appear to be getting the business.

In the Mt. Olive district there has been a little activity, but car supply as well as failure to move egg, nut and screenings is interfering with working time. The demand for domestic is just fair.

In the Standard district the only call for any size seems to be for 6-in. lump. All other sizes are hard to move, and some mines have been idle for many days on account of no bills. Car supply is good. All steam sizes are having a hard time.

Kentucky Feels Better

As a result of decision of the Interstate Commerce Commission granting the western Kentucky operators a rate to Minnesota and the Northwest at 25c. a ton over southern Illinois mines, there is better feeling in the western section of Kentucky this week, in spite of the fact that prices are still draggy and steam business unsatisfactory. Screenings have bucked up a little. Car supply is reported off in a few sections, although the condition probably will not last more than a day or two.

With the first below freezing temperature coming on the night of Oct. 30, it looks as if the fall season is beginning to run to form, and Louisville trade is feeling much better concerning the general outlook. Retailers are meeting with a much better demand and jobbers report orders more numerous for prepared. Industrial business continues a bit slow, as many industries are well stocked.

However, some industrial buyers realize that when lake movement ceases screenings will be in small production, and a price advance of around 50c. a ton is predicted, or perhaps more. Screenings will stay enough under mine-run to force movement. As the lake shipping season is about over an increased demand for screenings at better prices is beginning already to be felt. Other than advanced prices for screenings in all state fields, and a little firmer holding of mine-run, prices show no material change.

Northwest Market Improves Slightly

A wave of real snappy weather put a little life into the Northwestern coal market during the past week. The effect was largely upon anthracite demand, however, and that was none too marked, for a good deal of hard domestic fuel has already been dumped into cellars. The slacking off of anthracite shipments to the docks is attracting some attention. Of twenty-three cargoes on their way to the Head-of-the-Lakes, only two are of anthracite. Milwaukee stocks of anthracite are not increasing as was expected either, and only a few more cargoes are booked for that port.

Soft coal fills the whole region, however, and is moving in without stint. Milwaukee has received 2,571,753 tons already this season and last week saw six boats at the docks, the largest line-up of the season. Receipts at Duluth-Superior are heavy, too. Prices continue soft and it is the opinion of wise observers that the top heavy market will sag eventually, in spite of the inevitable arrival of winter. Out through the selling field of the Northwest price cutting continues common, for competition is keener than usual at this time of year.

West Feels Cold Snap, Too

A week of cold weather in the Southwestern district brought little relief to the screenings market. The market for lump and nut remains steady, with a few companies advancing the price of these two grades in Kansas coal 25c. to 50c. the first of the month. The increase was not general. Mines are operating from 60 to 70 per cent time.

Utah producers are very long on slack. Dealers have had a good month but business is slowing up a bit. Car shortage continues though it is not bothering the local dealers. Real winter weather for several days would probably embarass them, however, as the supplies in the local yards are below normal. Prices have not changed.

In Colorado the coal situation has changed slightly during the past week, inasmuch as the mines are working on an average of three to three and a half days a week now, although the majority of the operators still report few orders.

Ohio Markets Are Featureless

There is no outstanding feature in the Ohio trade. At Columbus prices are low and irregular and there is no special strength to the demand. Everybody seems to be playing a waiting game. Producers and distributors are selling only a fair amount of coal and hoping for a better demand when cold weather arrives. Steam-coal business is dull and buying practically only when distress coal can be had cheaply. With the railroads not taking as much tonnage as formerly, the utilities are the best customers. Screenings are extremely dull.

The Cincinnati market is dull. Buying is slow and prices easy. While smokeless lump and egg are quoted around $6 on the November circular the spot market runs as much as 50c. lower and even under that figure to brokers. Mine run is quoted at $2.50 but sales of the best Pocahontas No. 3

have been made as low as $2 and there has been quite a movement of prime New River coal of the best preparation as low as $1.75. The closing of the lake season is expected to throw considerably more coal into the inland market which it will be asked to absorb.

Reports received at Cleveland indicate that as a result of work in other sections of Ohio there has been a steady influx of miners into eastern Ohio, where continued operations of the mines is attributable in the main to production for railroads and shipments to the Lakes. Retail stocks are moving slowly, while steam demand continues negligible and inquiries are few.

Production in the Pittsburgh district continued downward. Now and then another mine closes, but others vary their output according to circumstances. Prices are not trending downward definitely but can hardly be said to show any stiffening tendency. General quotations do not indicate much because buyers are so discrimnating, having things their own way, that there is quite a range according to quality in the open quotable market. Demand for domestic coal is regarded as somewhat poor for this time of the year. Byproduct coal is in poor demand.

Conditions in central Pennsylvania are very unsatisfactory to the operator and miner. There is evidence that some large operators will close down some of their mines and operate others on full time, intending in this way to reduce the cost of production. Many of the mines now working are on short time. Loadings during October were approximately 62,000 cars, a decrease of 6,000 from September loadings. The number of no-bill cars on side track at the end of the month was estimated at 1,800.

There is no activity in the Buffalo market. Buying is practically at a standstill, and some shippers believe it is getting worse. Considerable coal is being offered dealers and low prices prevail.

Bright Spots Lacking in New England

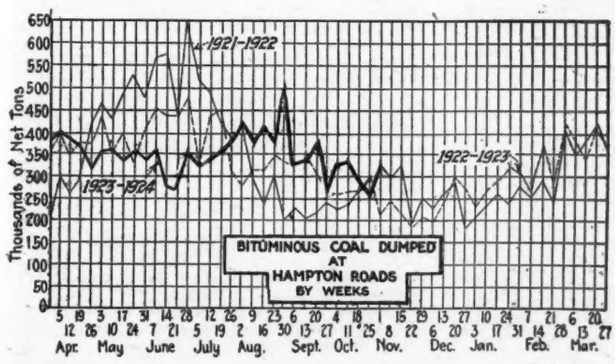
In New England the market drags along without any bright spots whatever. There are accumulations not only at the Virginia terminals but at discharging plants at this end, and in every direction quotations are soft. There is practically no buying except under pressure of special offers and at this writing it is difficulty to see how there can be any improvement during November.

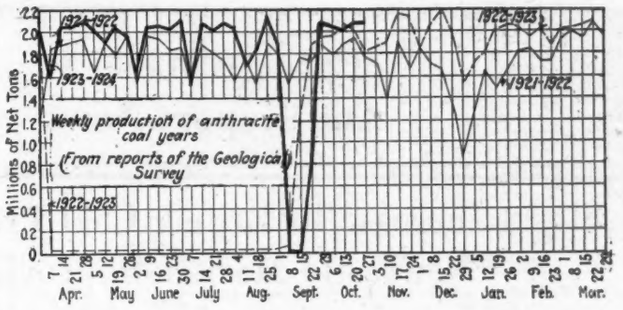
No. 1 Navy standard Pocahontas and New River are to be had at $4.30@$4.50 per gross ton f.o.b. vessel, and on cars Boston and Providence the quotations of last week have been shaded. As low as $5.35 per gross ton has been rumored f.o.b. Boston, while a few factors are trying hard to raise the price level to $5.75. Reserves are heavy among all the industries in this territory and there is not enough coal being consumed to warrant any prediction of firmer prices in the near future.

The market for steam coals from central Pennsylvania continues extremely dull. Neither f.o.b. mines nor at the Philadelphia and New York piers is there anything more than scattering demand and prices are correspondingly depressed.

Receipts High, Prices Low, at New York

Heavy receipts at tidewater and low prices rule the New York market. On Nov. 2 there were 2,445 cars of soft coal reported on tracks at four of the largest piers while


Thousands of Net Tons
1921-1922
1922-1923
1923-1924
BITUMINOUS COAL DUMPED AT HAMPTON ROADS BY WEEKS
Apr. May June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar.



the dumpings for that day amounted to but 346 cars, the average dumpings for the first five days of last week were 450 cars. There is little of the cheap coals to be had, most of the demand being for the better grades at low prices. Contract coals continue to move in fair volume, but many original prices have been shaded in order to keep it in transit.

Producers in the Philadelphia market are complaining, and are not able to operate their mines at anything like full time. The cutting of contract prices by some companies has been followed by other concerns, the spot market responding to the reduction.

Conditions at Baltimore are flat. Large consumers continue to buy in the open market and at times are able to pick up bargain lots. The situation appears to be growing worse so far as the prices of West Virginia coals are concerned.

A fairly good domestic market has been maintained in the Birmingham district because of weather conditions, little effort being required to move all of this grade of coal produced. The steam market shows no marked change and inquiry is slow. Production during the week ended Oct. 20 was the lowest for the present year, amounting to 333,000 tons. Labor is plentiful in the coal fields, a decided increase being shown in the number of applications for work.

Anthracite Market Gradually Easing

The hard-coal market is slowly becoming easier. While some retail dealers lack sufficient receipts to take care of their trade most consumers have some coal in their bins or are able to get it within a short while. Some shippers in order to keep down their supply of soft coal or the anthracite steam sizes induce their customers to take a portion of either of these coals with their order for the domestic coals and in many instances the buyer, having no immediate need for the soft coal or the steam sizes returns them to the market for sale. In some instances where a combination order is arranged concessions are made on the quotations for the domestic coals. The market was slightly affected by the lower temperatures that prevailed last week but there was no considerable urgency. Pea coal, next to the buckwheats, is the longest of the anthracite sizes, and shippers are having no difficulty to keep it on the move. The steam-coal situation is becoming serious. The larger operators are storing these coals, particularly buckwheat No. 1, while they are accumulating with the more prominent independent producers. The smaller independents are disposing of their coals at prices much under the company schedule.

Beehive coke production during the week ended Oct. 27 amounted to 276,000 net tons, says the Geological Survey, a decrease of 10,000 tons when compared with the previous week, establishing a new low record for this year.

Car Loadings, Surplusages and Shortages

	Cars Loaded	
	All Cars	Coal Cars
Week ended Oct. 20, 1923	1,072,881	190,451
Previous week	1,084,458	194,963
Same week in 1922	989,889	193,519

	Surplus Cars		Car Shortage	
	All Cars	Coal Cars		
Oct. 22, 1923	23,895	5,674	13,655	3,250
Same date in 1922	4,409	1,776	.....	.....
Oct. 14, 1923	27,062	5,674	15,920	4,179

Foreign Market And Export News

Slight Increase in British Coal Production; Newcastle Market Improving

An increase of 55,000 tons was made in the coal output of Great Britain's mines during the week ended Oct. 20, when compared with the previous week, the production amounting to 5,680,000 tons, says a cable to *Coal Age*.

The Welsh coal trade is still unsettled though somewhat steadier, owing to a recovery in the demand from Europe. Output of coal is high and mine suspensions, though not so frequent, are serious. The accumulation of stocks is enormous and operators are offering concessions to buyers who will take immediate delivery. Operators decline to see forward on current prices as many mines are not covering their operating expenses.

There is practically no contracting for next year, the large consumers abroad only inquiring with a view to testing the position and holding back the business in the hope of securing further reductions in price by waiting.

The Newcastle market is improving rapidly, both for forward and prompt positions. German inquiries are slow, though those from Italy and Scandinavia are strong. Most of the mines have sold their outputs to the middle of November.

Hampton Roads Market Weak

Conditions at Hampton Roads continued unusually dull last week, with the market weakening and inquiries negligible. The bunker trade alone appeared to be holding its own, although New England trade showed prospects of increasing.

Over production was given by shippers as the cause of the slump which has featured the local market for several weeks. They did not anticipate prices reaching a lower level, because they had already gone well below the low point for several years.

Domestic trade was pronounced dull, also, stocks having been laid in heavily several months ago in anticipation of strike difficulties. The tone of the market was exceedingly weak.

French Miners Want More Pay

Demand for industrial coals are being easily met by the French mines, but users of domestic coals are facing a shortage as soon as the demand increases. While prices are being maintained, a change is expected as a result of the demands of the miners for an increase in pay.

Imports of British coal slightly improved during the last week in October, but were still below the receipts for September. Concessions were made for prompt deliveries and terms for forward contracts remained firm.

Consumers are showing more interest in coals from the United States and inquiries are increasing.

United States September Domestic Coal Exports

(In Gross Tons)

	1922	1923
Anthracite	88,688	175,689
Value	$919,037	$1,855,733
Bituminous	1,175,007	1,768,620
Value	$7,875,237	$9,071,428
Coke	35,472	95,479
Value	$448,061	$930,039
NINE MONTHS ENDED SEPTEMBER		
Anthracite	1,138,222	3,445,793
Value	$11,752,105	$37,298,877
Bituminous	6,266,733	15,334,621
Value	$35,151,110	$85,309,428
Coke	256,281	932,719
Value	$2,473,348	$10,233,991

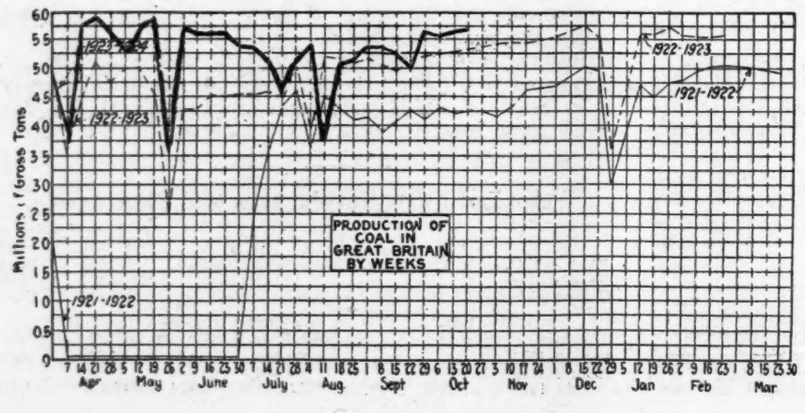
Export Clarances, Week Ended Nov. 3, 1923

FROM BALTIMORE

	Tons
For Porto Rico:	
Am. SS. Delisle	286

FROM HAMPTON ROADS

For Cuba:	
Nor. SS. Bratland, for Havana	3,103
For Australia:	
Nor. SS. Barfond, for Bathurst	1,777
For Italy:	
Ital. SS. Giovanni Florio, for Porto Ferrajo	7,100
For Santo Domingo:	
Br. SS. St. Andrew, for Puerto La Plata	6,776



Panama Canal Coal Shipments

Shipments of coal and coke through the Panama Canal from the Atlantic to the Pacific Ocean during the fiscal year ended June 30, 1923, amounted to 280,343 gross tons, as compared with 404,389 tons in 1922, says the *Panama Canal Record*. Of this tonnage there were 182,829 tons of coal and 97,514 tons of coke, of which 99,254 tons of coal and 80,364 tons of coke came from the British Isles, and 82,480 tons of coal and 14,762 tons of coke originated in the United States. The west coast of South America received 91,755 tons of coal, the United States 66,174 tons, and 7,676 tons went to Hawaii. Of the coke shipments 54,998 tons was destined for South America, 40,856 tons to the United States and 1,228 tons to Australia.

United States September Coal and Coke Exports

(In Gross Tons)

	1922	1923
Anthracite	88,688	175,689
Bituminous	1,175,007	1,768,620
Exported to:		
France	.....	36,990
Italy	.....	37,135
Netherlands	.....	29,655
Other Europe	.....	10,281
Canada	1,110,794	1,513,923
Panama	19,163	.....
Mexico	4,756	4,876
Br. West Indies	5,113	4,103
Cuba	31,709	47,382
Other West Indies	1	17,833
Argentina	.....	11,630
Brazil	.....	38,106
Chile	.....	848
French Africa	.....	6,384
Other countries	3,471	9,474
Coke	35,472	95,479

Hampton Roads Pier Situation

N. & W. piers, Lamberts Pt.:	Oct. 25	Nov. 1
Cars on hand	1,674	1,899
Tons on hand	96,158	114,718
Tons dumped for week	69,795	101,618
Tonnage waiting	4,500	.....
Virginian Ry. piers, Sewalls Pt.:		
Cars on hand	1,687	1,684
Tons on hand	102,200	99,400
Tons dumped for week	85,388	97,702
Tonnage waiting	12,314	7,100
C. & O. piers, Newport News:		
Cars on hand	1,606	972
Tons on hand	83,665	51,750
Tons dumped for week	76,208	107,931
Tonnage waiting	1,800	1,525

Pier and Bunker Prices, Gross Tons

PIERS

	Oct. 27	Nov. 3†
Pool 9, New York	$4.50@$5.00	**$4.65@$5.00**
Pool 10, New York	4.00@4.75	4.00@4.75
Pool 11, New York	3.90@4.25	3.90@4.25
Pool 9, Philadelphia	5.25@5.40	*5.20@5.35*
Pool 10, Philadelphia	4.35@4.90	*4.30@4.85*
Pool 11, Philadelphia	4.10@4.45	*4.05@4.40*
Pool 1, Hamp. Roads	4.25	**4.20@4.40**
Pools 5-6-7 Hamp. Rds.	4.25@4.40	*4.15@4.25*
Pool 2, Hamp. Roads	3.85@4.00	3.85@4.00

BUNKERS

Pool 9, New York	4.80@5.30	**4.95@5.35**
Pool 10, New York	4.30@5.05	4.30@5.05
Pool 11, New York	4.20@4.55	4.20@4.55
Pool 9, Philadelphia	5.40@5.80	*5.35@5.75*
Pool 10, Philadelphia	4.85@5.20	*4.80@5.10*
Pool 11, Philadelphia	4.40@4.70	*4.35@4.65*
Pool 1, Hamp. Roads	4.25	**4.20@4.40**
Pool 2, Hamp. Roads	3.85@4.00	3.85@4.00

Current Quotations British Coal f.o.b. Port, Gross Tons

Quotations, by Cable to *Coal Age*

	Oct. 27	Nov. 3†
Admiralty, large	27s.6d.	*27s.@27s.6d.*
Steam smalls	18s.@19s.	*15s.6d.@17s.6d.*
Newcastle:		
Best steams	24s.6d.@25s.	**25s.**
Best gas	24s.	24s.
Best bunkers	23s.6d.@24s.	*23s.@24s.*

† Advances over previous week shown in heavy type, declines in *italics*.

News Items From Field and Trade

COLORADO

The U. S. Land Office at Glenwood Springs has been directed by the Secretary of the Interior **to offer for lease a tract of public coal land in Colorado containing approximately 560 acres.** The land is in Garfield County in the Grand Hogback coal field. Lease for this tract will be at a government royalty of 10c. per ton for coal mined, a minimum investment in mining operations of $125,000 during the first three years of the lease, and a minimum production of 120,000 tons of coal a year beginning with the fourth year of the lease.

ILLINOIS

The B-B Coal Co. mine, on the Southern Ry., near Belleville, **has suspended operations.** More than 100 men have been employed. The B-B is the twentieth mine in the Belleville subdistrict to shut down since April 1.

Two Peabody Coal Co. men of the company's headquarters in Chicago were **killed Oct. 27 when the wire of a radio aerial they were erecting made contact with a high-potential line** of the Commonwealth Edison Co. They were **Albert F. Goeppinger,** auditor for the company, and **William J. Quinn,** an accountant. A third man who tried to drag the writhing pair away from the "hot" wire also died.

J. C. Howell, of the Howell Coal Co., Champaign, has opened an office in the Fisher Building, Chicago. R. L. Duncombe will be in charge of the new office. Mr. Howell will continue to reside in Champaign and will maintain his office there.

Jewel No. 1 of the Jewel Coal & Mining Co, **has closed down** at Du Quoin. Jewel Nos. 1 and 2 are both comparatively new mines and are under the control of the Sterling-Midland Company, Chicago.

The Rex Coal Co., Davenport, Ia., which operates a mine at Warner, Ill., **at its** annual meeting of stockholders in the Chamber of Commerce rooms in Davenport elected these directors: Hugh V. Burt, C. A. Curry, W. A. Carlson, H. E. Bishop, Frank McGuggin, C. W. Krueger, A. G. Vogel, James Van Arsdale and G. G. Gatrel.

The Illinois Mining Institute holds its annual meeting in St. Louis, Mo., November 24 at the American hotel, at 10 A.M.

The American Coal Sales Co., 360 North Michigan Ave., Chicago, has been incorporated with capital of $25,000, as a jobber in coal. The incorporators are Robert W. Kruse, H. E. Larkin and E. L. Verplanck.

After failing to meet two payrolls within three months' time the **Jackson Coal Co. resumed operations** again the week of Oct. 22 at Hallidayboro. The company, which has main offices in Connellsville, Pa., went into the hands of a receiver Oct. 15, following the second failure to meet the bimonthly mine payroll and the mine shutdown.

Eureka mine No. 1 at Marissa, which had been closed down since early last April, has resumed operations again. Borders No. 1, in the same district, recently closed indefinitely.

Perry O'Neal, for some time past chief electrician at Mine No. 16 of the Old Ben Coal Corporation at Sesser, has been transferred to Mine No. 14, at Buckner.

The Black Servant Coal Co. recently shipped its first carload of coal from its new strip mine at Elkville. The mine, just completed, is the last word in strip mining and uses the latest machinery on the market, including large electric stripping shovels. The output of the mine is screened and rescreened into various sizes putting the coal on a grade with any other in the district.

The Victory Coal & Mining Co.'s mine at DuQuoin, controlled by the Boehmer Coal Co. of St. Louis, has closed. The Boehmer Coal Co. besides operating several mines in the Belleville district, enjoys a good retail trade in St. Louis. Three years ago the company took over an old property at DuQuoin, which it remode'ed and up to this time has operated steadily.

There has been a shortage of water at several mines in the Southern Illinois field and some mines on the Mobile & Ohio R.R. have had to have water hauled by the railroad to keep their plants going. Recent rains helped the situation some.

The Shed Coal Co. is opening a stripping property near New Denison and **soon may be dumping coal** into cars on the Illinois Central **from a narrow-gage line** built from the mine to New Denison. It is expected that the new narrow-gage line will some day serve a number of properties along the right of way.

INDIANA

The Orton & Steinbrenner Co., Chicago, Ill., manufacturers of locomotive cranes, buckets and coal crushers, have just completed a large addition to their works at Huntington, Ind., which will approximately double the output of the Company. All equipment, including a large number of the most modern machine tools, has been purchased and most of it is already in use.

Two carloads of Indiana screenings from the Templeton Coal Co., of Terre Haute, have created considerable interest by **starting for Denver, Colo.** This is the first shipment known to have gone from Indiana so far west. It is a special coal for foundry use by the Griffin Wheel Co. Although the price of such coal in Indiana is low, the cost delivered in Denver is about $15, most of which, of course, is freight.

KENTUCKY

The Fordson Coal Co. of Stone has contracted with Roberts & Schaefer of Chicago for screens and loading booms to be installed at these mines: Pinsion Junction, Nos. 2 and 1-11 at Hardy, and Nos. 6 and 7 at McVeigh.

The Bertha-Consumers Co., of Pittsburgh, Pa., announces that the **post office address of Elsie Mines No. 1, 2 and 3, formerly known as Dalna, has been changed to Elsiecoal.** The post office address of Elsie No. 4 at Blackey, remains unchanged. Through the courtesy of the Louisville & Nashville R.R., the railroad billing stations have been changed as follows: Dalna, changed to Elsiecoal; Smoot, changed to Elsie No. 1; Wevakon, changed to Elsie No. 2, and Woodrock, changed to Elsie No. 4.

The Kentucky Jewell Coal Co., of Lexington, capital $25,000, has been incorporated by H. E. Bullock, M. O. Bullock, and J. W. Owens, all of Lexington.

Whitesburg reports that the recently formed **Sutton Coal Co.,** in Pike County, will sink a mine and build a new town soon and that it plans to start shipments early next year.

It is reported that the **Whitesburg Coal Co.** operations at Whitco **have closed down indefinitely** on account of low prices and lack of business.

W. F. Bradshaw, coal operator, banker and insurance man of Paducah, was on Oct. 19 appointed a member of the Child Welfare Commission by Governor E. P. Morrow.

A rescreening plant is now being built by Roberts & Schaefer for the **W. G. Duncan Coal Co.** at its mine in Greenville.

MINNESOTA

George H. Cushing is to talk before an open forum of the St. Paul Association on the coal situation of the Northwest on Nov. 14.

Much interest was shown in the report of the Federal Coal Commission relating to the situation in the Northwest, especially as it indicated that the retail trade has not been getting undue profits. County attorney Olson, of Minneapolis, who has been conducting an investigation into the coal costs, says that the independent coal companies are prospering, despite the handicaps indicated, as they are buying all-rail coal, and their number is increasing.

NEW JERSEY

The Irvington-Hilton Coal Co., of which the late Mayor Edward R. Folsom was president, has been **sold by auction** to Louis Folsom & Co., recently organized by Louis Folsom, son of the Mayor and vice-president of the bankrupt concern. A telegraphed bid of $4,000 was received from George H. Woolley of St. Petersburg, Fla., formerly of Irvington. Louis Folsom's bid was $4,200. The aggregate of bids for separate parcels of the equipment amounted to about $2,200.

NEW YORK

During the first eight months of 1923 there were 473,657 cars of soft coal loaded at mines located on the New York Central Lines, which was an increase of 23½ per cent over the number loaded in the corresponding period of 1919; 1.5 per cent over 1920; 46.7 per cent over 1921, and 153.5 per cent over 1922. Up to the end of August the New York Central lines dumped at Ashtabula and Toledo for lake shipment 64,233 cars of bituminous coal, which was 17.2 per cent of the total dumped by all other railroads at all Lake Erie ports.

H. H. Merrett, managing director of D. R. Llewellyn, Merrett & Price, Ltd., producers and exporters of coal, Cardiff, Wales, who has been in the United States for the past few weeks, sailed on the Aquitania, Oct. 22.

The Virginia Iron, Coal & Coke Co., for the quarter ended Sept. 30, 1923, **reports gross income of $279,842,** against $402,714 in the corresponding period last year. After allowing for interest, taxes and other charges there was reported net income of $170,414, which, after allowing for preferred dividends, was equal to $1.07 a share on the $10,000,000 capital common stock outstanding. In the same quarter last year the net available for the common stock, after preferred dividends, was equal to $2.11 a share. For the first nine months of the current year the company reports gross income of $844,425, against $679,117 in the same period last year. Net income after interest, taxes and other charges was $528,957. This amount after preferred dividends was equal to $3.41 a share earned on the common stock, against $1.01 a share earned on the common stock in the first nine months of 1922.

The Empire Coal Mining Co., of Philadelphia, has opened a branch office in the Marine Trust Building, Buffalo, with K. P. Lewis, formerly sales manager of the Somerset & Cambria Smokeless Coal Mining Co., as resident manager.

Seymour Whitley, several years Buffalo agent of the Pittsburgh Coal Co., announces **that he is going into the business on his own account.** The Pittsburgh Coal Co. has appointed A. S Fisher, of the Pittsburgh office, sales manager and P. B. Ballou, from the company's office in Erie, Pa., sales agent to succeed Mr. Whitley.

John Hays Hammond, chairman of the U. S. Coal Commission, was made **head of a department of current economic and political movements,** organized as a new branch of the National Civic Federation, at a luncheon given in his honor Nov. 1 at the Lawyers Club, New York City, by Judge Alton B. Parker, president of the federation. The department Mr. Hammond is to head will have for its aim the gathering and dissemination to the general public of information on domestic and world affairs. He will be aided in his work by a committee consisting of Louis Wiley, Henry S. Pritchett and Colonel R. M. Thompson. National experts in all fields will be asked to assist in the development of this group program, it was announced.

To his series of lectures on "A One Hundred Per Cent American Program" and "Fundamentals of Social Work," **Edward T. Devine,** member of the U. S. Coal Commission, has added a new topic **"The Coal Industry of America—A Program for Its Stabilization."**

The Buffalo Water Works received 21 bids, opened on Nov. 1, on its advertisement asking for 200 cars of slack coal, delivered during several weeks. The lowest was $1, f.o.b. mine by the American-Canadian Co., Buffalo, and the Miller-Corson Co., Philadelphia. The highest was $1.65.

OHIO

The new Philo plant of the Ohio Power Co., now being constructed in Muskingum County, **will have coal-storage capacity of 400,000 tons.** This is the largest amount that can be stored at any electrical plant in the

Ohio valley. A state canal paralleling the Muskingum River is being dredged for a distance of a mile and a quarter and when the work is complete the trough 30 ft. deep will be concreted. The canal will be filled with water and the coal poured into it from the railroad cars. The plant will use 3,800 tons of coal daily.

The Reeves Manufacturing Co., of Dover, is **completing an aerial-tramway system** that will transport its coal from two mines to galvanized sheet plant, a distance of five miles. An overhead cable slung from towers will carry steel buckets, each containing a ton of coal, and dump them near the furnace.

The Triumph Electric Co. and The Triumph Ice Machine Co., both of Cincinnati, announce that E. C. Morse has joined their organization as vice-president in charge of sales and as a member of the Board of Directors.

OKLAHOMA

A woman has actively entered the operating field in the Southwestern district, and has introduced the first steam-shovel outfit into her home county of Craig, in Oklahoma. She is Miss Pearl Holderman, who owns 1,000 acres of land just across the Kansas line. Miss Holderman's grandmother was a Cherokee Indian. When, back in 1916, Miss Holderman, a graduate of Kansas State Agricultural College, tired of teaching, for which she had prepared, she turned to the 40 acres of land she had received as a head right by reason of her Indian blood. In the seven years since, by her own efforts, she has increased her holdings to the 1,000 acres on which she has put her shovel to work.

PENNSYLVANIA

A new method of giving coal miners instruction to fit them for examinations for jobs as firebosses, mine foremen, assistant mine foremen and mine inspectors has been started in the anthracite districts of the state and Pennsylvania State College is ready to start in the bituminous districts. For several years, Penn State has had Prof. W. G. Duncan located in the bituminous fields supervising night classes for miners. Through a recent co-operative agreement with the college mining school, the State Department of Public Instruction and the State Bureau of Mines, this work has been greatly expanded. The college trains teachers for night classes and supplies the lesson material; the State Department of Mines conducts the examinations and the State Department of Public Instruction, when twenty or more miners of a community ask for the establishment of a class, assists the local school board in the maintenance of the work. Sixty-six lessons constitute the first year's work in anthracite mining; twenty lessons in mining electricity and twenty in mining mechanics. The bituminous-coal mining course consists of sixty short lessons.

F. E. Pratt, paymaster of the Dexcar Coal Co., operating mines at Ashville, Cambria County, **was held up and robbed of the company payroll**, amounting to $6,200, on Oct. 26, on a lonely road near the scene of mines where he was going to pay the miners. R. J. Haverty, a private detective, on Oct. 31, arrested Dennis (alias Pawnee Bill) Delozier and Clarence Delaney, at Coupon, Cambria County, and both were held for trial in the Cambria County courts. The Dexcar company offered a reward of $500 for the arrest and conviction of the bandits.

Auditor General Samuel B. Lewis on Oct. 24 called off the hearing he had set for that day when Rush N. Hosler, superintendent of the coal-mine section of the Pennsylvania Compensation Rating and Inspection Bureau, was to have been brought before him upon subpoena. Mr. Hosler had refused to permit certified accountants employed by the Auditor General to audit the books of the coal-mine section, although the accountants had found that the Insurance Fund had turned over to the section $250,000 of state money. Superintendent Hosler was directed by the executive committee of the coal mine section to appear and furnish all necessary papers and books in so far as they relate to the State Workmen's Insurance Fund. Accompanied by counsel, Hosler appeared before the Auditor General prior to the time fixed for the hearing and expressed a willingness to co-operate with the accountants. The audit of the Insurance Fund books was made as the result of the passage of a law of 1923 which gave the Auditor General the right to audit the books. The fund in the past had maintained it was not subject to audit by the state.

State Secretary of Mines Walsh completed a series of conferences in Allentown last week with the inspectors of the anthracite region, the purpose of the meeting being to discuss mining methods and practices with a view to providing, if possible, greater safeguards for the work men, the head of the Mines department said. The record of each of the anthracite inspectors, covering a period of several years, has been analyzed in an effort to see why accidents should be greater in number in some districts than in others, the Department of Mines announced. A similar analysis has been made of the casualty record of the various operators and it is the hope of Secretary Walsh, he said, that the number of accidents can be lowered as the result of having presented these facts to the inspectors.

The Carnegie Steel Co. plans to enlarge its coal unloading equipment at the Clairton plant. The plant now has two cranes which unload 13,000 tons of coal per day, each crane having a capacity of six tons per lift. It is planned to install two cranes of similar capacity soon.

The Blacker Engineering Co., Inc., Grand Central Terminal, New York City, manufacturer of Blacker Blacksmithing Hammers, have opened an office in Pittsburgh at 421 Wood Street with **George Hesse as district manager.**

Edward Manning, colliery superintendent of the Greenwood colliery, of the Hudson Coal Co., Minooka, at a meeting attended by about 350 employees of the mines held recently **offered a cash prize of $250 to the employee who submits before Dec. 1 the best analysis and paper on mining practice at the face.** The meeting was a second of a series of educational meetings and was addressed by B. T. Jones, senior assistant inside foreman, Mine Foreman John D. Price and Mr. Manning. The speaking was allowed by an entertainment.

W. L. Buchanan, general manager of the Hudson Coal Co. was the principal speaker at the **initial meeting of the Powderly-Coalbrook Safety Institute**, at Carbondale, on Oct 24. Other speakers were W. L. Weickel, colliery superintendent at Powderly; William Davison, colliery superintendent at Coalbrook; Fred Gilbert, chief clerk at Powderly, and Karl Hughes, colliery engineer. Following the addresses a general discussion among the men was carried on, when several good suggestions on the problem of safety were made. It was decided to offer a number of cash prizes for the writer of the best compositions on the subject, "Work at the Face," the decisions to be given out at a later meeting.

All of the property and assets of the Archbald Coal Co. have been acquired by the Suffolk anthracite collieries. The acquisition will increase the Suffolk's reserves by approximately 3,000,000 tons and increase daily output about 100 per cent.

The Adah mine of the H. C. Frick Coke Co. at Adah, in the sixth pool, Monongahela River, recently established a record in **loading 13 standard steel barges with 10,800 tons of coal.**

Robert Y. Stuart, Secretary of the Department of Forests and Waters, has sent to each mining company in Pennsylvania a letter **offering the department's co-operation in the planting of trees.** In this he said that the mining companies in the State during 1923 have planted 1,139,000 trees and that since 1916 they have planted 3,185,000 trees.

The main office of the Keister-MacQuown Fuel Co., of Pittsburgh, **will be moved** Nov. 1 from the ninth floor to the thirteenth floor, west tower, of the Union Trust Building.

The Candlemas Coal Co., composed of Wilkes-Barre capitalists, **is making rapid progress in the development of the old Silver Brook anthracite workings**, idle for the last twenty-five years, following expiration of the lease of the Wentz Coal Co.

The Lehigh Coal & Navigation Co. announces that new stripping operations at the "burning mines," at Summit Hill, are to be opened next spring. A location for an incline plane has been established in the effort to extinguish the fire which has consumed millions of tons of high-grade coal. The company plans to open the stripping operation in front of the fire and remove the coal, so that the fire eventually will have to burn itself out when the coal in that particular locality is consumed.

Fire broke out in the Oakdale mine of the Carnegie Coal Co., near Pittsburgh, on Oct. 26, resulting from the ignition by open lights of oil which flowed from a pipe line following a cave-in of shallow cover. A 4-in. pipe line of the Pure Oil Co. passes over that part of the property of the coal company which is pierced by No. 1 butt entry. The section affected by the fire consists of about 15 acres, which is a tentacle of the main body of coal and is overlaid by a shallow cover. Where the surface break occurred the thickness of the cover is about 15 ft.; rooms were driven but no pillars were taken out. Fortunately, at the time of the cave-in, the oil company was not pumping oil. It is estimated that about 300 gallons of oil standing in the pipe line drained into the mine. Ordinarily the flow is 300 bbl. per hour. Smoke from the fire overcame several miners, but all of them were rescued. Temporary brattices were erected by apparatus men as close as possible to the seat of the fire in order to clear the atmosphere of smoke on the outbye side of the temporary stoppings. Preparations were then made to erect concrete dams. The fire zone will be completely flooded in ten days' time by discharging water into the surface break from a pump with a capacity of 1,000 gallons per minute. It is expected that the fire will be quenched by this method. The main body of the mine is not endangered by the fire.

Governor Pinchot has sent telegrams to the Anthracite Operators Policy Committee suggesting that they come to Harrisburg to confer with him further relative to anthracite prices.

Planning to make a survey of business conditions in the countries of the Far East, **Dean K. Chadbourne**, manager of the department of the Far East of the Westinghouse Electric International Co., will sail from San Francisco the latter part of the month **to visit Japan, China, the Philippine Islands, Java, Australia and New Zealand.** Mr. Chadbourne's visit will result in closer relationships between the company and its representatives and agents in the Far East. He will also assist other Westinghouse officials in co-operating with Japanese officials and business men in the reconstruction of the area devastated by the recent earthquake and fire.

TEXAS

The Madison Oil & Coal Co., of which Hall Etter, Houston, is president and manager, will erect a tipple and power plant near Calvert, and will move machinery and some equipment from another location, but will want mine cars, mine rails, mine props and ties.

The Producers' Mining Co. has been organized at Bastrop, with capital stock of $10,000. Incorporators are: E. S. Orgain, John Belto and Martin Belto. The company will mine lignite from the extensive beds near Bastrop.

UTAH

The Mutual Coal Co. of Salt Lake City has received permission to sell 2,500 shares of its stock at $12.50 per share. The company has 49,703 shares outstanding.

The Blazon Coal Co. has filed amendment to its articles increasing its board of directors from three to five members.

The F. C. Richmond Machinery Co., representatives for The Conveyors Corporation of America, Chicago, have moved their offices and sales-rooms to 320 West Second South Street, Salt Lake City.

The Pahvant Coal Co. is offering to the public an issue of 500,000 first mortgage, 7 per cent serial gold bonds, due July 1, 1928 to 1938, and priced at 98 and accrued interest to yield about 7½ per cent. The company owns and has under option 840 acres of coal land in Spring Canon, Carbon County, a portion of which for immediate development is estimated to contain 6,000,000 tons.

WASHINGTON

The coal operators of the state are **conducting a publicity campaign** in defence of the Washington coal industry's right to live. It is repeatedly pointed out that the industry now employs about 30,000 people, directly and indirectly that it is the third largest industry of the state and contributes heavily to the state's welfare and prosperity. However, it is harassed by oil shipped in from southern California at a freight rate less than the average rate on Washington coal to Seattle, and by coal from British Columbia which takes about the same rate as Washington coal but which is mined in large measure by Orientals working for $2 a day less than Washington union miners. An effort is being made to prevent an increase in coal land taxation in Kittitas County by a new assessment cruise. An offer has been made to voluntarily increase the valuation without a cruise.

WEST VIRGINIA

Logan coal operators are to open their own employment office at Charleston and W. A. Butler, of Lundale, will be placed in Charge. The office will handle only the employment situation for the Logan operators, as there is a constant demand for miners in the Logan field.

The Wheeling-Glenwood Coal Co. has been incorporated at Wheeling with $500,000 capital by E. L. Peters and associates.

Title to 5,518 acres of coal land in the Boone County field, heretofore owned by the Laurel Coal Land Co., and located on Spruce Fork and Little Coal River has been **taken by Pemberton Hurchinson** and **George McCall**, president and vice-president, respectively of the Westmoreland Coal Co., of Philadelphia, which operates coal properties in the Irwin Basin of Westmoreland County, Pa. The large acreage in Boone County was purchased from the Chiltons, of Kanawha County, for a sum said to be in excess of $600,000.

J. B. Clifton, one of the best-known coal men in southern West Virginia, having **acquired the holdings of George Wolfe, president of the Atlantic Smokeless Coal Co.**, operating at Asco in the McDowell County field, has succeeded Mr. Wolfe as president of the company; Dr. J. Howard Anderson of Marytown, is vice-president; W. M. Black of Lynchburg, Va., is secretary and treasurer, and R. E. Brockman of Asco is general manager. The new president of the company is at the head of several large companies operating in the smokeless fields of southern West Virginia.

Coal loading records for a given week period were again shattered on the Chesapeake & Ohio during the week ending Oct. 13, when the output reached a total of 17,605 cars, equal to 880,250 tons. Of the total loadings it appears that between 60 and 65 per cent are originating in the Logan district. The remaining tonnage comes from the Kentucky, New River, Kanawha, Winding Gulf and Coal River districts, served by the Chesapeake & Ohio.

The Cap Smokeless Fuel Co. has purchased 850 acres of coal and timber land, including all equipment, houses and other buildings, owned by the E. G. Blume heirs of Fayette. The Fayette mine, which will be operated, is one of the oldest in the New River district, but during the past few years has been operated only at intervals. It was last operated by the E. G. Blume Co.

The Jamison Coal & Coke Co., operating in Pennsylvania and northern West Virginia, has liquidated $150,652.08 of its first mortgage, 5 per cent sinking fund gold bonds.

Many mines in the New River field having no screening facilities are unable to operate. Owing to the fact that about the only grade now marketable is prepared coal several concerns in the New River district are preparing to equip their mines with screening facilities. Slack is going to the market below the cost of production.

The Fordson Coal Co., of Stone, Ky., have contracted with the Roberts & Schaefer Co. for the installation of a completely equipped steel tipple to be installed at its mine at Nuttallburg.

There has been an adjustment of the differences between consumers of power furnished by the Appalachian Power Co. and the company **as to rates to be charged for power.** About a year and a half ago coal companies using this power sought an adjustment of rates at the hands of the Public Service Commission of West Virginia. The commission, however, refused such a petition after a hearing lasting several weeks. The consumers took their case to the West Virginia Supreme Court. It is understood now, however, that there has been an agreement under the terms of which the case will be dismissed from the courts without prejudice, the power company settling all costs and expenses.

WASHINGTON, D. C.

The Department of Labor reports the **adjustment** late in October **of four strikes of coal miners**, with the return of the men to work pending conferences. Two of these strikes were at the Barnum Colliery, Pittston, Pa., and No. 6 Mine of the Pennsylvania Coal Co. of Pittston, both over working conditions and involved respectively 200 and 1,675 men. Another was that at the Central Colliery, Avoca, Pa., the cause being a union dispute and involved 600 men. The fourth strike was that at the Dana Colliery, Dana, Ind., the cause being given as railroad transportation. This dispute was referred to the Public Service Commission. Another such strike is still pending at the mines of the Canaanville Coal Co. of Ohio, the cause and number of men involved not being given.

The U. S. Civil Service Commission announces open competitive **examinations to fill existing vacancies in the positions of mine valuation engineer and assistant valuation engineer** in the income tax unit of the Bureau of Internal Revenue, Treasury Department, Washington, D. C. **The position** of valuation engineer carries a salary of from $3,600 to $4,800 a year, and that of associate engineer from $3,000 to $3,600 a year. Applications for these examinations will be received by the commission up to and inclusive of Dec. 28.

Explosives sold in the United States during August, totaled 577,098 kegs of black powder, 4,463,830 lb. of permissibles and 19,779,355 lb. of other high explosives. Sales during the eight months ended with August were made up of 4,736,976 kegs of black powder, 37,768,814 lb. of permissibles and 151,694,228 lb. of other high explosives. The coal industry purchased 86.2 per cent of the black powder sold; 94.1 per cent of permissibles and 15.9 per cent of other high explosives.

Commissioner of Internal Revenue Blair has approved the ruling of the Solicitor of the Bureau in the case of a coal company holding that **coal used in the manufacture of war materials is an article which contributed to the prosecution of the war** and, therefore, buildings erected for the use of miners of such coal were "buildings constructed for the production" of that article. **The effect of the decision is to allow the coal company in question its claim for amortization on miners houses built** in 1918 to increase coal production as a war measure. The principle involved in this case is said to apply also to other facilities which may have been constructed between April 6, 1917, and Nov. 11, 1918, for the purpose of increasing coal production. Estimates have been made that several hundred coal-mining companies have failed to take a deduction for amortization in the years in which it is properly allowable, because of the fact that they were not aware they were entitled to such a deduction under the law. The National Coal Association calls attention of coal operators to the fact that failure to take a deduction for amortization in the years wherein it is properly allowable does not preclude the filing of a claim for refund or credit, based on a claim for amortization. Claim for refund or credit on any return, however, must be led within five years from the date on which the return was made. That period of limitation will expire on March 2, 1924. It is suggested, therefore, that coal operators who are entitled to amortization and have not made claim therefor must file a claim either for refund or credit on or before that date; otherwise, they will be barred by the Statute of Limitations. The decision of Commissioner Blair has been officially designated as A. R. R. 3920:11-29-1146 and will appear under that designation in the next issue of the Government's Service Bulletin.

CANADA

In the **annual mine-rescue and first-aid meet under the joint auspices of the Rocky Mountain Branch of the Canadian Institute of Mining and Metallurgy and the Workmen's Compensation Board of the Province of Alberta**, held at Blairmore, Alta., Drumheller took two first prizes, one for mine rescue and one for first aid, though the Crow's Nest Pass Coal Co.'s team from Michel Colliery tied with the Hygrade Coal Co., of Drumheller, in mine-rescue work. In the first-aid events Drumheller made 83.83; Lethbridge Collieries No. 1, 83.50; Bellevue, West Canadian Collieries, 82.83; Lethbridge Collieries, No. 2, 80.83; the International Coal & Coke Co., Coleman mine, 78; and the two Crow's Nest Pass Coal Co.'s teams from Michel and Coal Creek Collieries, 76.50 and 67.83 respectively. Four teams of Boy Scouts had a separate contest, and one ladies' team, obtaining a score of 82.83, was awarded a prize. In the mine-rescue contest the Crow's Nest Pass Coal Co., Michel Colliery, and the Hygrade Coal Co., Drumheller, each obtained 91 per cent; Crow's Nest Pass Coal Co., Fernie No. 2 team, received 90.53; Brazeau Collieries and West Canadian Collieries, Bellevue No. 3 team, each 90. There were in all twelve teams entered in the mine-rescue contest. Medals were given to both the teams making the top score.

The bituminous-coal mining interests of New Brunswick are manifesting keen interest in the Employers' Association, which is being formed to represent the employer in business with the Provincial Workman's Compensation Board. The chief difficulty to the organization is the reluctance of the board to countenance the birth of the association, which under the law, must be approved by the board. The efforts to form the association are the fruits of the present and past policy of the personnel of the board which has sought to penalize industry in maintaining the board. C. J. Cell, manager of the Minte Coal Co., represents the coal mining interests on the provisional executive of the Employers' Association.

Michael Dwyer has resigned as mechanical superintendent of all of the Scotia Co. Sydney Mines, N. S., and will devote his time to the Indian Cove Coal Co., of which he is managing director. Mr. Dwyer has been connected with the Scotia Co. for a number of years in various official capacities.

The Seagram-Fawcett Coal Co., Ltd., of Waterloo, Ont. has been incorporated with an authorized capital of $100,000. The provisional directors are Edward F. Seagram, William J. Fawcett and John Ferguson.

The Dominion Coal Co., of Glace Bay, is installing two Marcus screens in its new steel tipple.

The Milnes Coal Co., Ltd., of Toronto, has increased its capital from $250,000 to $500,000.

James B. McLachlan, former secretary of the United Mine Workers district 26, convicted in the Supreme Court on a charge of seditious libel, was **sentenced** on Oct. 31 at Halifax, N. S., **to two years imprisonment.** The charge arose out of a letter circulated among the locals of the union accusing the provincial police of atrocities in dealing with the striking coal miners. The charge of conspiracy brought against his colleague, Daniel Livingstone, president of the organization, has not yet been tried and he is out on bail. At Sydney the grand jury has returned a true bill against John Macdonald of Toronto, also charged with seditious utterances.

The commission appointed to inquire into the Cape Breton steel workers' strike has been holding preliminary meetings to consider the scope of the investigations, and began the taking of evidence at Sydney, N. S., on Oct. 31. It has been decided that if it should appear that there is a relationship between the steel workers' strike and that of the Cape Breton coal miners the latter will be included in the inquiry.

A mining company in the union field of Alberta won the right to hire whom it would without union interference under a decision recently handed down by a conciliation board appointed by the federal Minister of Labor. The decision is considered of great importance and is unprecedented in Canada. In July, when the Hygrade mine at Drumheller reopened after a shutdown, the mine manager declined to re-employ James Conroy, a union miner. The managing director of the company also declined. Conroy claimed they should be compelled to give him employment under the "preference of employment" clause of the working agreement which reads: "In case an employee is thrown out of employment, unless discharged, he shall be given preference over new men in other mines in the same camp operated by the same company." The company held that, since is had but one mine, it could decline re-employment to former employees even though they had not been discharged previously. The conciliators supported this position.

British Columbia's coal production for the month of September totalled 181,634 tons, a drop as compared with the previous month of 40,662 tons. Of the total output the Vancouver Island mines were responsible for 121,880 tons, approximately 67.1 per cent, which is 14,067 tons under the production of August. The Nicola-Princeton mines produced 18,978 tons, a decrease of 2,613 tons in comparison with the output for August and about 10.4 per cent of the total production. The mines of the Crow's Nest Pass district produced 40,776 tons, which is 23,982 tons under the August figure and some 22.5 per cent of the total for the province. All the Vancouver Island mines show a decline with the exception of the Canadian Collieries (D) Ltd., Comox mine, which has an increase in comparison with August results of 689 tons and Messrs. King & Foster, Old Wellington mine, which shows an increase of 7 tons.

Output of coal from Canadian mines during July amounted to 986,400 net tons, a decrease of 25 per cent from the tonnage for the previous month and 14 per cent from the average fof the month of the three preceding years. The output for the month showed decreases of 435,000 tons in Nova Scotia, and 4,000 tons in New Brunswick. In Alberta there was an increase of 106,000 tons, in British Columbia 6,000 and in Saskatchewan 2,000 tons. The cumulative output from all mines for the seven months

of 1923 amounted to 9,717,000 tons, an increase of 20 per cent over the preceding three-year average for the same period. Comparison of the July and June figures covering the importation of coal from the United States and Great Britain showed a decrease of 5 per cent. July imports amounted to 2,445,000 tons, while in June 2,562,000 tons was brought in. The July importations this year were 58 per cent greater than the preceding three-year average for the month. Importations from Great Britain during the month totaled 60,900 tons. Total importation of all coal for the seven months of 1923 was 12,648,000 tons, an increase of 53 per cent over the three-year average for the period. The imports of anthracite for July totalled 495,800 tons. This was 2 per cent less than in June but 37 per cent higher than the three-year average for the month. Anthracite imported from the United States amounted to 474,200 tons while 21,600 tons came from Great Britain during the month. The total amount imported during the seven months of 1923 was 3,187,600 tons, an increase of 44 per cent over the three-year average for this period. The exports of Canadian coal for the month of July were 28 per cent less than in June. The quantities were: July 73,000 tons, June 101,400 tons. Comparison of the July exports with the preceding three-year average showed a decrease of 67 per cent.

Obituary

Nathaniel Shanklin, 81, one of the men who developed the Grundy County Coal Co., died at his home in Trenton, Mo., Oct. 26, after a lingering illness. He also had been identified with other business enterprises of Trenton, including general merchandising, grocery and feed and fuel, but his greatest success was with the coal company.

James Russell Fitzer, head of the J. R. Fitzer Coal Co., a jobbing concern in the Citizens Savings & Trust Building, Columbus, Ohio, died suddenly Oct. 31 from heart trouble. He came to Columbus six years ago to become salesmanager of the Sunday Creek Coal Co., which position he held up to two years ago. He leaves a widow, two sons and a daughter. One son, John Fitzer, was associated with him in business.

Edwin Ball, age 65, general manager of coal and ore mines for the Tennessee Coal, Iron & Railroad Co., died suddenly at his residence in Birmingham, Ala., Oct. 27. Mr. Ball came to the Birmingham district a number of years ago from the northern ore fields and had been manager of mines for the Tennessee company during his entire residence in the South. He was an able official and had many friends among the employees of the company. He was also prominent in civic affairs and club circles. Mr. Ball was born in England and came to this country at the age of sixteen.

Recent Patents

Coal Jig. George W. Wilmot, Hazleton, Pa., assignor to Wilmot Engineering Co., Hazleton, Pa.; 1,466,866. Sept. 4, 1923. Filed Dec. 23, 1921; serial No. 524,342.

Dumping Mechanism for Dump Cars. Robert H. Starbird, Pittsburgh, Pa.; 1,466,970. Sept. 4, 1923. Filed Feb. 28, 1921; serial No. 448,694. Renewed Feb. 7, 1923.

Hoisting Cage. Vernor T. Barkley, Pittsburgh, Pa.; 1,467,223. Sept. 4, 1923. Filed Sept. 15, 1920; serial No. 410,530.

Apparatus for Washing and Wet Screening. Niels C. Christensen, Salt Lake City, Utah; 1,467,355. Sept. 11, 1923. Filed March 8, 1921, serial No. 450,678.

Mining Machine. George W. Starr and Wm. D. Paynter, Grass Valley, Calif.; 1,467,513. Sept. 11, 1923. Filed Nov. 30, 1921; serial No. 518,789.

System and Apparatus for Conveying Coal. Kenneth Davis, St. Benedict, Pa., assignor to Rembrandt Peale, St. Benedict, Pa.; 1,467,845. Sept. 11, 1923. Filed Dec. 12, 1918; serial No. 266,505.

Mining Machine. Jacob M. London, Tunnelton, Pa., assignor to Jeffrey Mfg. Co., Columbus, Ohio; 1,467,864. Sept. 1, 1923. Filed Dec. 7, 1916; serial No. 135,664. Renewed Jan. 15, 1921; serial No. 437,631.

Coal Chute. John S. Erskine, Freeport, Ill., assignor to Stover Mfg. Co., Freeport, Ill.; 1,468,012. Sept. 18, 1923. Filed March 14, 1922; serial No. 543,558.

Combined Coal and Cinder Hoist. Clyde P. Ross, Chicago, Ill.; 1,468,606. Sept. 18, 1923. Filed June 26, 1922; serial No. 570,765.

Mining Machine. Joseph Rechichar, Plymouth, Pa., assignor of 45 per cent. to Wm. B. Cleary, Plymouth, Pa.; 1,468,326. Sept. 18, 1923. Filed Sept. 21, 1922; serial No. 589,622.

Coal-Tar Support. W. G. Jamrog, Saginaw, Mich.; 1,468,266. Sept. 18, 1923. Filed Oct. 5, 1922; serial No. 592,640.

Chain Cutter for Mining Machines. Edmund C. Morgan, New York, N. Y.; Olive Eugene C. Morgan, executrix of Edmund C. Morgan, deceased; 1,468,914. Sept. 25, 1923. Filed March 25, 1920; serial No. 368,802.

Coke Wharf. Elliott J. Mason, Pittsburgh, Pa., assignor to Heyl & Patterson, Inc., Pittsburgh, Pa.; 1,468,971. Sept. 25, 1923. Filed July 14, 1921; serial No. 484,626.

Pulverized Fuel-Feeding and Distributing Apparatus. C. F. Herington, Pittsburgh, Pa., assignor to Heyl & Patterson, Inc., Pittsburgh, Pa.; 1,468,966. Sept. 25, 1923. Filed Sept. 14, 1922; serial No. 588,217.

Loading Machine. Patrick J. McDonald, New Cumberland, Pa.; 1,469,046. Sept. 25, 1923. Filed June 22, 1922; serial No. 570,212.

Cutting Apparatus for Mining Machines. Walter J. Wilson, Sewickley, Pa.; 1,469,132. Sept. 25, 1923. Filed Nov. 18, 1918; serial No. 263,059.

Briquetting Machine. Wm. F. McDevitt, South Dorset, Vt.; 1,466,405. Aug. 28, 1923. Filed Dec. 30, 1921; serial No. 525,952.

Drill Bit. Edward W. Shimin, Thermopolis, Wyo.; 1,463,848. Aug. 7, 1923. Filed Jan. 17, 1923; serial No. 613,289.

Apparatus for Washing and Sorting Coal and Other Minerals. Antoine France, Liége, Belgium; 1,464,035. Aug. 7, 1923. Filed Aug. 17, 1921; serial No. 493,117.

Cooling and Stabilizing Charcoal. Orin F. Stafford, Eugene, Ore.; 1,464,732. Aug. 14, 1923. Filed Aug. 19, 1920; serial No. 404,500.

Mining Machine. George W. Starr and Wm. D. Paynter, Grass Valley, Calif.; 1,465,372. Aug. 14, 1923. Filed July 25, 1921; serial No. 487,348.

Scraper. G. W. Packer, Chicago, Ill., assignor to the Goodman Mfg. Co., Chicago, Ill.; 1,465,456. Aug. 21, 1923. Filed May 19, 1921; serial No. 470,711.

Association Activities

The question of ore equitable freight rates on smokeless coals produced in the Pocahontas, Tug River, New River and Winding gulf fields, as discussed in a recent meeting of the **Smokeless Coal Operators Association of West Virginia** at New York is being brought to the attention of consumers in New England and other states along the Atlantic. It is being pointed out to the consumers that an adjustment of rates is important if consumers are to obtain soft coal when it is needed and particularly during periods of hard-coal shortage. If all-rail rates to the Atlantic markets were more equitable, it is pointed out, it would be possible to establish a large and steady market and thus supply the demand. As stated at the recent meeting at New York coal can be shipped from the smokeless fields to Chicago for $3 27 a ton and yet the same amount of coal shipped to New York, which is twenty miles nearer takes a rate $2.75 per ton higher. Not only is that true but the freight rate to Baltimore and Philadelphia is higher than the rate to Chicago, although the distance is much shorter.

Trade Literature

Boiler Trimmings. Wright-Austin Co., Detroit, Mich. Bulletin No. 500. Pp. 24; 6x9 in.; illustrated. Describes safety alarm water columns and trimmings. This bulletin supersedes No. 1240.

Separators and Exhaust Heads. Wright-Austin Co., Detroit, Mich. Booklet 300. Pp. 56; 3x6 in.; illustrated. The different types of steam and oil separators, flanges and exhaust heads are covered.

Type T Heavy Duty Reliance Motors for Direct Current. Reliance Electric & Engineering Co., Cleveland, Ohio. Bulletin No. 2014. Pp. 31; 8x10 in.; illustrated. All parts that are included in the make-up of these motors are minutely described. Table of ratings with adjustable and constant speeds and general outline dimensions are given.

The Van Dorn Electric Tool Co., Cleveland, Ohio has issued a page folder illustrating and describing its **Electric Glue Pot.**

The Reliance Electric & Engineering Co., Cleveland, Ohio, has available for free distribution a 51-page paper by its chief engineer. A. M. MacCutcheon, entitled **"Anti-Friction Bearings in the Steel Mill."** This was presented at the fifteenth annual convention of the Association of Iron and Steel Electrical Engineers and is written from such a standpoint that it is of general interest to users and designers of machinery and power equipment in other industries.

Publications Received

Timbering of Metal Mines, by E. A. Holbrook, Richard V. Ageton and Harry E. Tufft, Bureau of Mines, Washington, D. C. Bulletin 215. Pp. 72; 6x9 in.; illustrated. This manual is intended chiefly for the practical miner or small operator.

Traffic News

A complaint has been filed by the Hannibal Shippers' Association against the A. T. & S. F. Ry. **attacking rates charged on coal from Illinois mines to Hannibal, Mo.** The complaint stated that preferential rates had been allowed by the defendant carrier to St. Louis and other points which are in direct competition to the members of its association, pointing out that these preferential rates are in violation of Section 3 of the Interstate Commerce Act.

Railroads of the United States on Oct. 15 had 10,509 locomotives in need of repair, 16.4 per cent of the total number on line, according to a report by the Car Service Division of the American Railway Association. This was an increase of 686 over the number in need of repair on Oct. 1, at which time there were 9,823, or 15.3 per cent. The railroads on Oct. 15 had 2,487 serviceable locomotives in storage where they are being held until traffic conditions necessitate putting them in service. During the first 15 days in October 19,323 locomotives were repaired and turned out of the shops.

Freight cars in need of repair on Oct. 15 totaled 155,637, or 6.9 per cent of the total number on line, according to reports filed by the Car Service Division of the American Railway Association. This was an increase of 4,305 over the number in need of repair on Oct. 1, at which time there were 151,332, or 6.7 per cent.

The Interstate Commerce Commission has refused to suspend the new tariff increasing freight rates on Utah coal. The petition for rehearing is still before the commission. The commission order was effective Oct. 15, and it was explained the request for suspension had been filed too late, as at least ten days' notice and preferably twenty, before the tariff becomes effective was required. The order increases rates on Utah coal to points west of Mountain Home.

Coming Meetings

Harlan County Coal Operators' Association. Nov. 21, Harlan, Ky. Secretary, E. R. Clayton, Harlan, Ky.

Illinois Mining Institute. Annual meeting Nov. 24, Springfield, Ill. Secretary, Martin Bolt, Springfield, Ill.

Second National Exposition of Power & Mechanical Engineering. Grand Central Palace, New York City, Dec. 3-8. Managers, C. F. Roth and F. W. Payne, Grand Central Palace, New York City.

Coal Mining Institute of America will hold its annual meeting Dec. 19, 20 and 21 at Pittsburgh, Pa. Secretary, H. D. Mason, Jr., Chamber of Commerce Building, Pittsburgh, Pa.